Hand Infections

بداية كلامك في أي سؤال

In the management of hand infection take care:

1- General and local rest to the hand in the elevated position.
2- Early administration of antibiotics.
3- Early drainage of infection i.e. *don't wait for fluctuation.*
4- Incision must be planned and under general or regional anesthesia.
5- Incision is done under tourniquet to have a dry field to be able to explore the abscess.
6- The hand must be maintained in the elevated position to prevent edema & congestion.
7- Position of immobilization is that of function of the hand.
8- Early restoration of function by movement.

Pulp Space Infection

Treatment:

1- Don't wait for fluctuation.
2- The incision is sited directly over the most tender point and in direction of Langer's lines.
3- Other technique: 2 incisions on sides of the palm to divide all septa + drain.

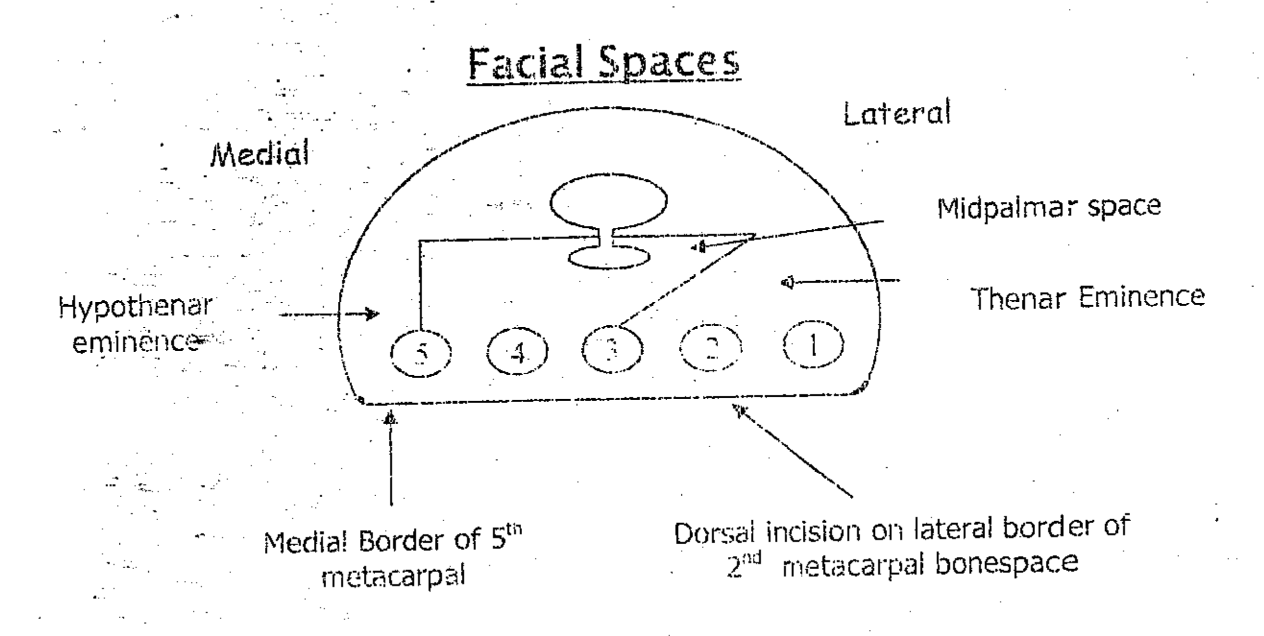
Web Space Infection

Management:

Hilton

1- A transverse skin incision is made over the point of maximum tenderness or fluctuatio and then an artery or a sinus forceps is opened in a longitudinal direction (to avoid damage to the digital nerves and vessels), through the subcutaneous tissue to enter the abscess cavity..
2- Vertical dorsal incision. Take care, and don't reach the edge of the web.

Facial Spaces



Hypothenar Space Infection

Management

- A vertical incision at the site of maximal tenderness or along the medial border of the fifth metacarpal bone is done. The space is entered by a sinus forceps i.e. **Hilton's method.**

Thenar Space Infection

Management

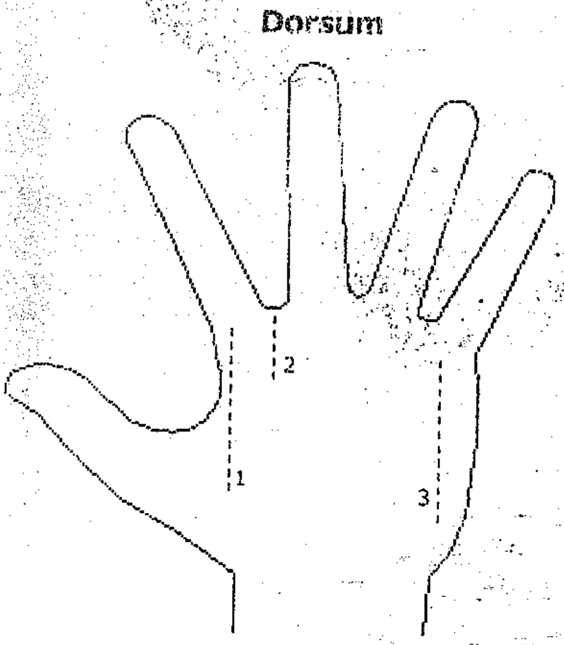
- Transverse incision at the web then the space is open by a sinus forceps (Hilton's method) **OR**
- Vertical incision on the lateral aspect of the back of the 2nd metacarpal bone, this is the commonly used incision.

Mid Palmar Space Infection

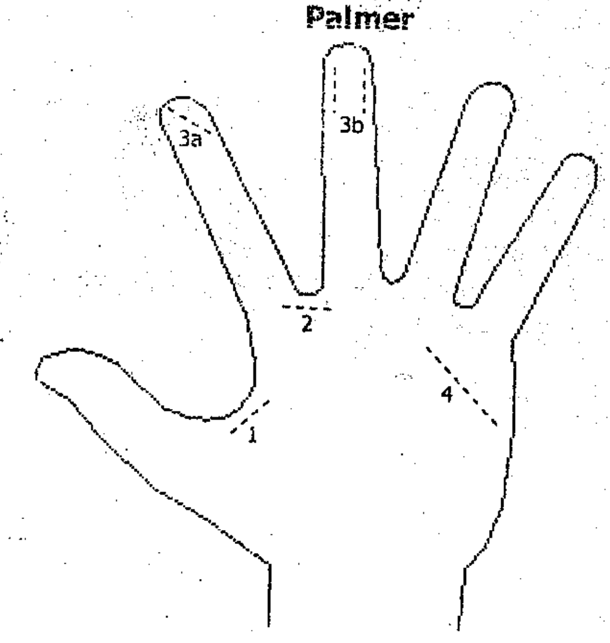
Management

- **Incision when pus is formed:** either:
  - If there is a collar-stud abscess, incise along one of the hand creases, draining the subcutaneous abscess. The hole in the aponeurosis is explored and is enlarged to drain subaponeurotic collection.
  - A transverse incision is done like that of the web space and by Hilton's method a sinus forceps is introduced into the retrotendenous space to drain.

Incisions Of the Hand



1- Thenar
2- Web (Vertical incision)
3- Hypothenar



1- Thenar
2- Web (Hilton) & mid palmar space
3- Palp Space: a. Oblique incision
b. 2 incisions on sides to divide all septa
4- Mid palmar

A. H.

Jaw Swellings

(I) Epulides

(1) **Fibrous epulis**
- Fibroma causing losening of teeth.
- Appears between 2 teeth.
- Treat. → Teeth extraction & wedge resection of bone.

(2) **Granulomatous epulis**
- Due to chronic irritation
- Treat. → Curettage

(3) **Hemangiomatous epulis**
- see later

(4) **Myeloid epulis**
Osteoclastoma

(5) **Malignant epulis**
Squamous cell carcinoma (malignant ulcer)

(II) Odontomes

- May arise from ectodermal or mesodermal origin of tooth or both.
- Those of ectodermal origin (Paradental debris of Malassez) are common.

	(A) Dental Cyst	(B) Dentigerous cyst
•origin	-Paradental debris of Malassez	- same
•etiology	-Infected tooth	- Unerupted tooth
•site	-Commonest is Upper incisors	- Lower 3rd molar
•age	- Old age	- Younger age
•structure	-Wall is lined by epithelium, content is brownish fluid.	- Wall → same; content is clear &glory + contains tooth
•C/P	-Slowly growing swelling, 1st hard then shows egg-shell crakling	- same
•X-ray	-Cystic swelling	-Cystic swelling with tooth inside
•D.D.	-Other causes of jaw swellings	-Same
•treat.	-Extraction of the affected tooth&excision of the wall of the cyst.	-Deroofing of the cyst & the lining membrane. Tooth → Normally directed → Not removed; Maldirected → Removed

G.R. ما تتخضش

ولا يهمني أسد A.H. عنده حل

ياخبر ياخبر!! الورقة دي شكلها معقد خالص أنا لو مسكتها أعرف أذاكرها

Reham Fouad. 27.4.2002

- System
- C/P → وحش . أسد
- Fate →

- New in system
- C/P → Toxic
- Fate →

(C) Adamantinoma

- Eve's tumour
- Basal cell caricnoma

Giant cell granuloma (Benign)
osteoclastoma(malignant)

	Adamantinoma	Giant cell granuloma
origin	- Paradental debris of Malassez	- Bone tumour
Site	- Angle of the mandible	- Symphesis menti
extension	- Outer table more than the inner	- Outer & inner tables
microscopic	- see later	- see Later
Gross pic.	- Multiple cystic swellings	- see Later
C/P	- Slowly growing sweeling, 1st hard then shows egg-shell crakling	- same
X-ray	-Equal cysts → Honey-comb appearance	-Unequal cysts → Soap bubble appearance
Treat.	-Resecton with safety margin +Reconstruction of the mandible using bone graft from the contralateral 5th rib.	- Same + other option → Curretage & Radio therapy

(III) Bone Swellings

as - Ivory osteoma

- Osteo clastoma

-Maxillarey antrum carcinoma

- Fibrosarcoma

- Osteösarcoma of the mandible

To be "System" or not to be, this is the question.

Tongue Ulcers

AH

Ahmed El.Sherbiny 13-12-2004

East or West AH Is The Best	**Traumatic**		**Inflammatory**			**Neoplastic (Squamous Cell Carcinoma)**
			Acute	**Chronic**		
	Dental Ulcer	**Frenular Ulcer**	Dyspeptic (Apthus)	TB	Syphilitic	
Etiology	Sharp teeth	Tongue protrusion in severe cough	Unknown (was wrongly thought upper GIT disturb.)	2ry to open Pulmonary TB	Breakdown of gumma	- Previous irradiation - Marjolin's ulcer - Carcinogenic agents
Number	Single	Single	Multiple	May be multiple	Single	Single
Pain	Painful	Painful	Painful	Severe	Painless	Pain related to the ear
Site	Margin of the tongue	Frinulum (inferior surface of tongue)	Sides, dorsum & inner surface of lip & cheek	Dorsum posteriorly & tip anteriorly	Dorsum in midline	- Lat. margin of ant. 2/3 50% - Posterior 1/3 20%
Size	Usually small	Small	Small	Usually small	Large	Grow rapidly & may reach large size
Shape	Rounded	Rounded or oval	Rounded or oval	Rounded	Rounded	Irregular
Surface	Granulation tissue	Granulation tissue	Covered with white scabs	Pale granulation tissue	Wash-leather (dirty)	Malignant fungating tissue
Margin	Hyperemic	Hyperemic	Hyperemic	Cyanotic		Necrotic tissue
Edge	Sloping	Sloping	Sloping	Undermined & cyanotic	Punched out	Raised everted
Base	Soft	Soft	Soft	Soft	Indurated	Indurated
L.N.	Chronic non-specific	Chronic non-specific	Chronic non-specific	TB lymphadenitis		Metastatic LNs: Hard, progressive and fixed
TTT	Remove septic tooth	ttt of cough	- Gentian violet - Anesthetic gel.	- Anti TB ttt - Oral hygiene	Anti syphilitic drugs	- Surgical removal - Radiotherapy

NB. 1- Chronic Superficial Glossitis : see **AH** notes

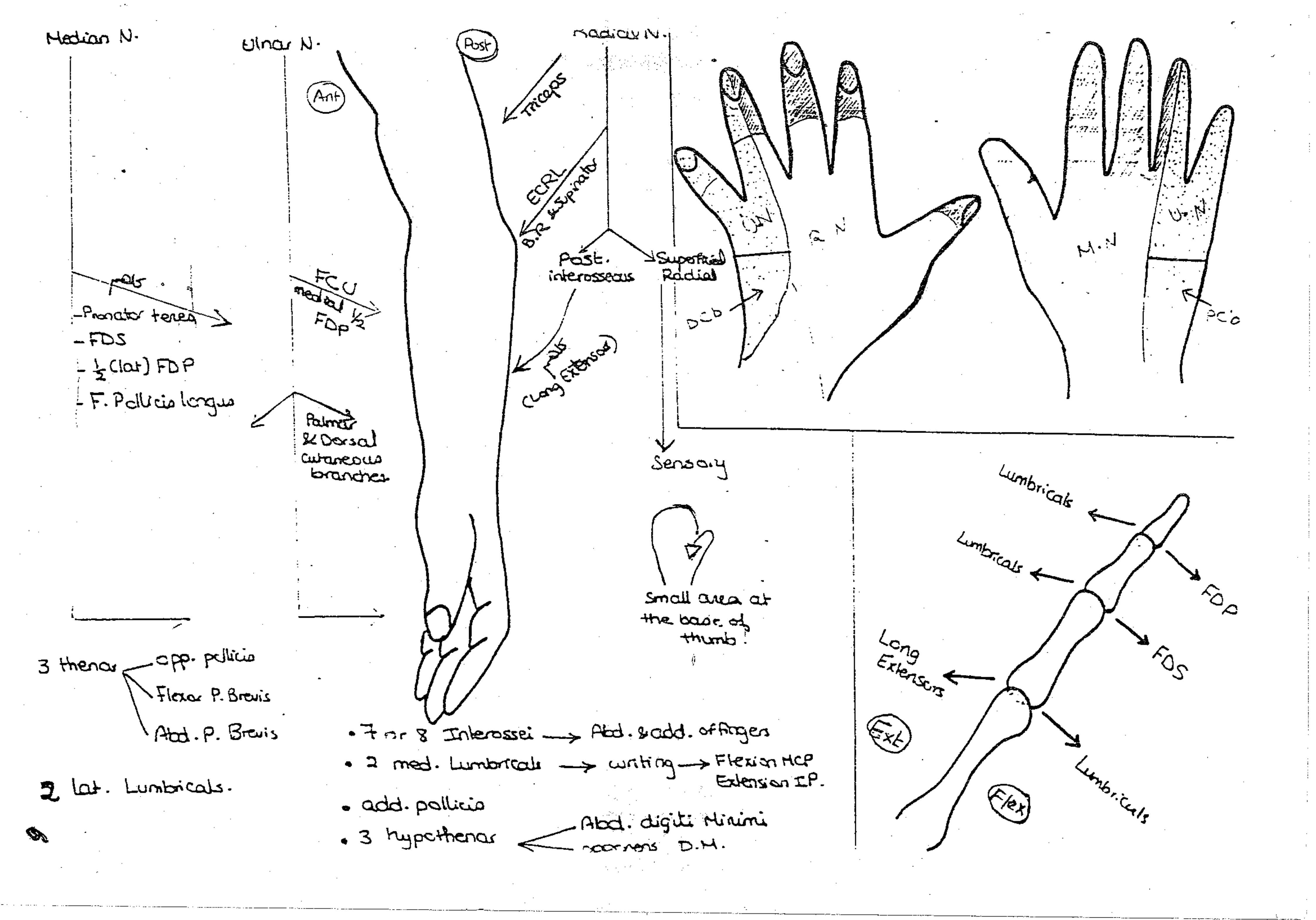
2- Acute inflammatory ulcers also includes:

- **Herpetic ulcer** which is multiple, painless, rounded, with hyperemic margin and is caused by herpes simplex virus. It is treated with antiviral drugs.
- **Lichen planus** which is supposed to be due to an autoimmune mechanism. It affects the skin, oral mucosa and may cause ulcers + hyperkeratotic lesions

TREATMENT OF CHRONIC ISCHEMIA

	CONSERVATIVE METHODS	INTERVENTIONAL RADIOLOGICAL PROCEDURES	SURGICAL TREATMENT		
			Direct arterial surgery (Arterial reconstruction)	Indirect arterial surgery (Lumbar sympathectomy)	Amputation
Indications	1- Mild ischemia. 2- Poor general condition of the patient. 3- When an operation is not technically feasible	Localized obstruction in large and medium sized arteries.	a- Severe ischemia (rest pain or pre-gangrene). b- Adequate run off. c- Proximal arterial occlusion (anywhere from abdominal aorta to the terminal part of popliteal artery). d- Good general condition	**Indications:** Cases of ischemia when direct arterial surgery is **NOT** feasible i.e. with distal occlusion (Bad distal run-off). It is of value in cases: a- With ischemic ulcers b- With rest pain. **Contraindications:** 1- Intermittent claudication (worsen the muscle ischemia). 2- Gangrene (ineffective)	*There are 2 possibilities*: 1- **Conservative Amputation:** If *blood supply of adjacent tissues is good* or *can be improved, line of demarcation appears and separation proceeds by aseptic ulceration.* In such cases do either: a- Excision of toes at line of demarcation leaving raw surface to heal by granulation. b- Transmetatarsal or midtarsal amputation in forefoot gangrene *provided there is viable long plantar flap reaching base of toes, to cover the stump* (dorsal skin cannot withstand trauma). 2- **Urgent high amputation:** *Indications:* 1) Spreading gangrene endangering the patient's life. 2) Uncontrollable infection and toxemia. 3) Severe pain deteriorating the general condition of the patient. *Level of amputation:* Depends on the **blood supply sufficient for wound healing:** a- In atherosclerosis (involve femoral art.) above knee amputation (the stump will be supplied by the profunda femoris). b- If popliteal pulse is felt below knee amputation
Methods A.H. RAMY ALKONAIESY	1-Mild exercise short of causing pain (help the collateral circulation). 2-Stop Smoking. 3-Correction of anemia. 4-Control of DM, hypertension and hyperlipidemia. 5-Drugs: ↓↓ platelet aggregation as dipyridamole, small dose of aspirin, pentoxiphylline or PGE. 6-***Protection of ischemic parts:*** **a)** Carefully washed, dried, and powdered. **b)** Protected by woolen socks (in winter) and suitable shoes. **c)** Nails and corns are cut cautiously. **d)** Infections are treated properly.	1-***Percutaneous transluminal angioplasty (PTA):*** a special balloon catheter is introduced percutaneously until it reaches the stenosed or occluded segment then inflated to dilate the stenosed segment. 2-***Application of stent:*** After balloon angioplasty 3-***Destruction of the atheroma*** by laser can be performed before angioplasty.	A) ***Thromboendarterectomy:*** • **Indication:** Large artery (e.g. aorta and common iliac) and localized lesions. • Removal of the thickened atherosclerotic intima with the overlying thrombus using endarterectomy loop. B) ***Bypass grafting:*** • **Indication:** Big and medium sized artery with extensive or multiple lesions involving a long segment. • **Types of arterial grafts:** 1-**Synthetic grafts:** Teflon, Dacron or PTFE. Indication: Large arteries e.g. Aorto-iliac segment. 2-**Autogenous grafts:** Using long Saphenous either: **a. *Reversed long Saphenous vein graft:*** to prevent obstruction by its valves. It is the graft of choice for femoro-popliteal segment. **b. *In situ long Saphenous vein graft:*** valves are destroyed using special valve stripper. All tributaries are ligated to prevent A.V. fistula.	Thromboendarterectomy Bypass grfting Aorto-Bifemoral	

- **Direct arterial operations** are *salvage procedures* & should not be performed for early mild cases (e.g. intermittent claudication) as if the operation fails loss of the limb may occur.
- Claudication is a relative indication for surgery e.g. if the patient may lose his job.
- In **Thromboendarterectomy** before closing the arteriotomy incision, the distal intima should be attached to arterial wall by interrupted sutures to prevent its dissection later on.
- If **amputation** is to be done bilateral, do your best to do below knee on one side.


Median N.
Ulnar N.
Radial N.
Ant
Post
Triceps
ECRL
B.R & Supinator
Post. interosseous
Superficial Radial
Sensory
(Long Extensor)
Pronator teres
FDS
½ (lat) FDP
F. Pollicis longus
FCU
medial ½ FDP
Palmar & Dorsal cutaneous branches
U.N
R.N
M.N
U.N
DCB
PCB
Small area at the base of thumb.
3 thenar
opp. pollicis
Flexor P. Brevis
Abd. P. Brevis
2 lat. Lumbricals.
• 7 or 8 Interossei → Abd. & add. of fingers
• 2 med. Lumbricals → writing → Flexion MCP Extension IP.
• add. pollicis
• 3 hypothenar
Abd. digiti Minimi
opponens D.M.
Lumbricals
Lumbricals
FDP
FDS
Long Extensors
Lumbricals
Ext
Flex

6

Breast Carcinoma

Pathology

1-Lobular		2-Duct		
Non-infiltrating	Infiltrating	Non-infiltrating 6%		Infiltrating
		Comedo	Papillary	A.H. Many thanks
Multifocal(CIS) 0.7%	Mirror image 7.5% 25%bilateral	central necrosis& extrusion of sebaceous like material from cut surface	Bleeding from nipple	

	Schirrous 70%	Encephaloid 10%	Mucinous 3%	Inflammatory
Gross	*Hard* Concave cut surface,rough,gritty,pale gray	*Brain like* Large,soft	*Gelatinous* Usually bulky	☒ Rare type ☒ Most malignant ☒ Fulminant form ☒ Ressemble mastitis ☒ Swelling with red warm edematous skin ☒ Often no distinict mass
Micro	All degrees of differntiation	Less fibrous tissue than schirrous	Extra or intracellular mucin with signet ring appearance	
Prognosis	Early lymphatic spread زبالة	Lymphatic spread later than schirrous with better prognosis	Better prognosis than schirrous	

3-Paget'sdisease

Nature

Intraduct carcinoma in epithelium of main duct

Spread to skin of nipple producing erosion& breast substance

Appear within 2 years

Histology

1-**paget's cells**:clear vacuolated small dark nuclei in clusters or alone

2-**hyperplasia**: of all epidermis

3-**round cell infilteration**: of dermis

Mohammed Rafeeq

N.B. Any mucinous carcinoma carries bad prognosis except in breast
Any tumor with lymphocytic infilteration carries good prognosis

DR. ***Ali Hassib.***
Prep. Yasmin Bassiouny.
Re wr. Salah Yousuf.

reatment of Thyrotoxicosis:

A) Non – specific: 1) Rest. 2) Sedatives. 3) Nutritive diet and excess fluid. **(For all cases).**
B) Specific: 1) Antithyroid drugs. 2) Radioactive Iodine. 3) Surgery.

In *Specific* ttt :(Each patient is considered *Separately* and one measure or A combination of measures is chosen for him)

↓↓↓

	Medical Treatment	**Radioactive Iodine**	**Surgery**
Aim	1-To restore pt to an euthyroid status.then , 2- Prescribe a maintenance dose for a prolonged period hoping for permanent remission.	To destroy the thyroid cells thus reducing the mass of functioning thyroid tissue.	1- To decrease the mass of overactive tissues. OR 2- To remove All the overactive tissue in case of toxic nodule.
Indications	1- 1ry thyrotoxicosis . 2- Mild thyrotoxicosis. 3- Small gland. 4- Children and young patients. 5- Pre-operative preparation. 6- Post – operative recurrence. 7- Refusal of surgery. 8- Unfit for surgery.	1- Diffuse toxic goiter (> 25 years). 2- Thyrocardiac patients. 3- Refusal of surgery. 4- Recurrence after surgery. 5- Toxic nodule.	1- *2ry toxic goitre.** (*NB*: * = *Surgery only).* 2- Severe 1 ry thyrotoxicosis 3- *Retrosternal toxic goiter**. 4- *Huge goitre.** 5- *Suspicious of malignancy.** 6- Failure of medical treatment. 7- Occurrence of side effects due to medical ttt. 8- Thyrocardiac after proper preperative prep. 9- *Pregnancy and lactation.* * 10- Toxic nodule.
Contraindications	1- Toxic nodular goitre. 2- Retrosternal goitre. 3- Huge goitre causeing pressure symptoms. 4-Suspicious of malignancy. 5- Leucopenia or agranulocylosis. 6- Pregnancy and lactation.	1- Below the age of 25 years 2- Retrosternal goitre. 3- Huge goitre. 4- Suspicious of malignancy. 5- Pregnancy and lacation. 6- 2ry toxic goitre.	1- Mild cases. 2- Young patient (< 25 yerars). 3- Recurrence after surgery.
Method	• **Methods:** a) **Sedatives:** *Aim*: -To insure complete mental rest and good night sleep. b) **Indral (β blocker) ;** *Action*: -↓ HR and palpitation. -Partially ↓ conversion of T_4 to T_3. *Dose:* 10-40 mg t.d.s orally. c) **Antithyroid drugs**: *Onset*:Start their clinical effect after 2 weeks. *Aim*: To control thyrotoxicosis gradually till euthyroid state is reached.	• **Dose:** **160 μ Ci / gm of thyroid tissue.** Improvement occurs by 8-12 weeks (2-3 months), If not , A second dose may be required.	• **Pre-operative preparation** **a) Routine Method**: **(Medical treatment)**: *1- Neomercazole (Carbimazole):* till euthyroid state is reached . *2- Lugol's iodine*:10-14 days immediately before surgery to ↓ vascularity and friability of the gland. **b) Rapid preparation**:(β adrenergic blockers) *Aim*: Rapid control of C.V.S. manifestations. *Action*: Acts on Target organ and not on the thyroid itself . So, it must be continued for 1 week after the operation.

	Preparations: 1) **Lugol's iodine: (5%I + 10% KI)** *Indication*: Only in preoperative prep. *Action*: -↓ TSH effect on thyroid gland. -↓ Vascularity &friability of gland. -↓ Iodine binding to tyrosine. -Storage of colloid within the acini . -It's action declines after 2 weeks . *Dose*: 10 drops t.d.s with milk or juice to mask the bitter taste. 2) **Carbimazole:**(*the commonest drug used*) *Action*: -Blocks iodine binding to tyrosine. -↓ Antibody titre. *Dose*: 10 mg t.d.s till euthyroid state is reached (2 months), then 5 mg t.d.s for 12-18 months. NB: 0.1 mg/day thyroxine with antighyroid drugs to: 1- decrease danger of producing iatrogenic hypothyroidism. 2- prevent goitrogenic effect (↑ size of gland) 3) **Propylthiouracil: (not used)** *Action*: -Blocks iodine binding to tyrosine. -Prevents peripheral conversion of T4 to active T3. 4) **Potassium Perchlorate: (not used)** *Action*: ↓ iodine trapping by the thyroid.	***NB: Speical problems in management:*** ***[1]-Thyrotoxicosis with pregnancy***: **-Radioiodine is absolutely contraindicated:** as destruction of fetal thyroid may result. **-Antithyroid drugs** at usual dose result in fetal hypothyroidism with goiter,may obstruct air ways minimal dose antithyorid drugs avoids this risk. **-Surgery after short course of antithyroid and propranolol** proved to be safe during 2nd trimest. ***[2]-Thyrotoxicosis in children:*** **-Radioiodine is contraindicated** in children. **-Surgery shows high recurrence rate.** **-Treated by Antithyroid drugs until late teens.** ***[3]-Thyrocardiac patient:*** **-Thyroidectomy is ideal after control of the cardiac status.** **-In unfit patients:** radioiodine is used with antihyroid drugs until the effect of radioiodine appears (6weeks). ***[4]-Propotosis of recent conset:*** - Not preferable to terminate the toxic status abruptly by surgery or radioiodine for fear of the risk of malignant exophthalmos. - So,antithyroid drugs are used until the proptosis becomes stable **for 6 months**,after which, thyroidectomy is permissible.	**Operation:** **The following precautions should be considered:-** 1)**The incision** should be wide with division of the pretracheal muscles, thus manipulation is minmal to avoid thyrotoxic crisis. 2) **The operation done is…** ***Subtotal thyroidectomy*** *Principle:* -The main mass of the gland is removed leaving only a thin postromedial wedge of each lobe. -The amount of the gland left is 4-5 gm on each side. *WHY?* - To maintain an euthyroid state. - To preserve the parathyroids. - To protect the recurrent laryngeal nerve. 3) **Perfect haemostasis** and free **drainage** to avoid thyrotoxic crisis.
Advantages	1) Avoid surgical risks. 2) Avoid possible hazards of radioactiveI.	1) Avoid surgical risks. 2) Avoid prolonged medical therapy.	1) Rapid cure. 2) High rate of success.
Disadvantages	1) No way to predict which patient is liable to remission. 2) High relapse rate: 60% within 2 years from stoppage of treatment. 3) Further enlargement of the gland. 4) Adverse effects of drugs: Thiouracil & Carbimazole: GIT upsets, Rashes, Arthralgia and Agranulocytosis: *(due to reversible bone marrow dep.)* *So,Bl.Picure must be done every 2 weeks.*	1) Thyroid insufficiency in up to 75-80% of cases after 10 years, So follow up is a must. 2) It is inadequate for treatment of 2ry toxic goiter (i. e.recurrence).	1) Morbidity and Mortality (negligible in experienced hands). 2) Recurrence rate (<5%). 3) Thyroid insufficiency (20-45%).

Calcular obstructive uropathy مهم جدا كل حاجة

	Renal stones مهم نظرى++++	Ureteric stones نظرى+++	Vesical stones محتمل نظرى ++	Urethral stones مستبعد نظرى+
Incidence	• 10-20% of the population • Males > females • Middle age HOWEVER,no age is immune	√	√ + Children	√
Aetiology Metabolic(1-5) Infection(6) Stasis(7) Cong. Anomalies(8)	1-)Geography:- Mediterranean and deserts 2-)Climate and seasonal variations:- Hot countries 3-)Water intake:- Quantity and quality (minerals and trace elements) 4-)Diet:- *Oxalates= Spinach, tomato and mango *Uric acid: Purines= Meat and liver *Calcium= Milk 5-)Metabolic and endocrinal factors:- *Ca oxalate and phosphate* (Hypercalcemia): Hypercalcuria & Hyproxaluria *Uric acid* (Hyperuricemia): Hyperuricosuria *Cystine and xanthine*: H. Cystinuria &H.Xanthiuria 6-)Infection:- urea splitting bacteria→alkaline urine →Triple phosphate stone 7-)Stasis 8-) Congenital anomalies			
Types	I-Ca oxalate and Ca phosphate stones(75%):- 1-) Ca oxalate calculi:- Hard- radio-opaque- radiating specules 2-) Ca phosphate calculi:- Yellow- radio-opaque –grow in alkaline urine- large in size e.g. Stag-horn stone II-Ammonium and magnesium phosphate stones:- yellow- radio-opaque- grow in alkaline urine- grow rapidly- friable III-Uric acid stones:- Yellow- smooth- hard – radio-lucent الوحيدة IV- Rare stones:- 1-) cystine 2-) Xanthine			
Edited By Ahmed Diaa AFTER Mostafa Mahmoud Hasanain		1ry→formed in the ureter(rare) 2ry→migrate from the kidney	1ry→without infection 2ry→with infection→ phosphate stone (common)	1ry→formed in the urethra(rare) 2ry→migrate from above
	C O M P L I C A T I O N S			
H Hematuria	√	√	√	√
I Infection(pyuria)	√	√	√	√
M Migration	√	√	√	→ على الشارع
O Obstruction	Calcular anuria		Retention of urine	
M Malignancy	SCC	—	—	—

	Renal stones	Ureteric stones	Vesical stones	Urethral stone
Type of patient	Male- Middle aged	√	√+ Children	–
PAIN: Character Site Due to	•Dull aching •In the renal angle and referred to the ant. Renal point •Due to pelvic distension or stretch of the renal capsule	<u>I-Stones of upper 1/3:</u> •Colicky pain •In the loin referred to the groin, testicles or labia <u>II-As stones moves to the middle 1/3:</u> •Groin pain (iliac fossa D.D. append.) •Referred to the upper thigh, tip of penis or vulva <u>III-Stone impacted in the lower 1/3:</u> •Frequency and pain at the end of micturition •Severe •Referred to the tip of penis or vulva •Often associated with strangury (= bladder tenesmus)	•Varies from slight discomfort to severe agonizing pain •In supra-pubic region •Referred to tip of penis or vulva •Due to contraction of the bladder around the stone at the end of micturition •PAIN is more at daytime and aggravated by movement •STRANGURY: intense desire to micturate with passage of few drops of blood stained urine and a sense of incomplete evacuation •FREQENCY 1st diurnal the diurnal and nocturnal(cystitis) & due to irritation of bladder mucosa especially trigone •DIFFICULTY IN MICTURITION: interruption of the stream or acute retention	•Burning pain •During micturition •Interruption of the stream followed by retention of urine
	During attack of renal or ureteric colic there is usually nausea and vomiting			
Examination	<u>General:</u> Fever is rarely present until there is UTI <u>Abdominal exam:</u> Moderate deep tenderness at the site of stone. Often there is tenderness at post. Flank as well		<u>General:</u> √ <u>Abdominal exam:</u> May be supra-pubic tenderness	Exam usually can detect stone If metal bougie is passed CLICK is felt شركة محمول
Investigations	<u>I-Lab.:-</u> 1-)Urine analysis: **Crystals of same type that causes stones **Microscopic or gross hematuria **Pus cells 2-Urea and creatinine <u>II-Radiological:-</u> 1-)Plain X-ray"KUB":urinary calculi are 90% radio-opaque→→→ Renal: Opposite T12, L1,2,3& may need lateral view- May be Staghorn; Ureteric: Opposite tip of T. process- on the sacral alae – On pelvic side wall; Vesical: Supra-pubic- midline; Urethral: Below symphysis 2-) IVU: •Detection of obstruction •Helpful in radiolucent stones (filling defect) •Idea about renal functions 3-)US: •Detect severity of obstruction(= back pressure changes) •Helpful in radiolucent stones •Difficult to view all the ureter <u>III-Rarely needed :</u> 1-)DMSA scan: if patient is sensitive to contrast 2-Ascending(retrograde) pyelography: for radiolucent calculi difficult to localize with other investigations			

TREATMENT

	Renal stones	Ureteric stones	Vesical stones	Urethral stones
1-] During the attack	•Hospitalization •Analgesics (opiates) •Antispasmodics e.g. Aminophylline •Adequate hydration •Antibiotics in case of UTI •Filtering of urine or micturating in a clean container •Stone analysis (to detect its type) •Planning for future therapy		—	
			2-] Conservative (Aim:تنزل لوحدها)	
			Indications:- -Stone less than 5 mm diameter حصوة صغيرة -No backpressure effect or infection مش عاملة مشاكل -No distal obstruction ومعهاش مشاكل Method:- 1-)The main item: High Fluid Intake 2-)During the attack of pain (the same previous measures)	
3-] Measures to prevent recurrence	Advices:- 1-) High fluid intake especially in hot weather 2-) Certain precautions according to the type of stone, directed mainly to avoid certain diet 3-) Treatment of any metabolic disturbance e.g. GOUT and Hyperparathyroidism			

INTERVENTION TREATMENT

General indications	1*large >5mm 2*Growing 3 *Persistent pain 4*Evidence of complication :→**H**: gross hematuria **I**: 2ry Infection **O**: Obstruction

RENAL STONES

1-) ESWL

Indications:	Contraindications:-	Advantages:	Complications:
•All stones < 2cm •As a part of combined therapy	*UROLOGICAL:* *Large stone >2cm *Lower calyx stone *Associated pathology *Acute episode of renal Inf. *Distal obstruction *Renal insufficiency *Solitary kidney: except with stenting of the ureter *NON-UROLOGICAL:* *Bleeding tendency *Pregnancy *Bone anomaly e.g. scoliosis or kyphosis (difficult localization)	*Painless *Suitable for risky patients *Successful for Most U. stones except: radiolucent and hard stones	1.وهى نازلة *Transient attack of hematuria *Colicky uerteric pain *Fever 2.Failure to disintegrate the stone

2-) PCNL

Indications:	Contraindications:	Advantages:	Complications:	Method:
•If ESWL is CI or failed •As a part of combined therapy	•Absolute: Bleeding tendency •Relative:-Pregnancy -Bone anomalies -Cong. anomalies	•Small endoscopic wound •Mild postoperative pain •Short hospital stay	•Rarely injury to: *Duodenum *Colon *Spleen *Pleura •Comp. related to stone removal	1.Under fluoroscopic or US guidance, pass a guide wire through the flank to reach the renal pelvis 2.Dilate the track 3.Pass a nephroscope with a sheath 24-30 french 4.Extract the stone through the sheath 5.large stone can be disintegrated before extraction by: US, Laser, Compressed air, Electrohydrolic waves "Direct contact lithotripsy"

RENAL STONES (Continued)

3-) Combined ESWL and PCNL

Indications:
- Big or staghorn stone

Method:
- Debulking of the stone by PCNL then complete disintegration of the remaining part by ESWL

4-) Open surgery

1. Pyelolithotomy
2. Nephrolithotomy
3. Pyelonephrolithotomy: for branched calculi.
4. Lower partial nephrectomy: For stone in lower calyx with narrowing of its neck
5. Nephrectomy: For non-functioning kidney if the other is normal

5-) Chemolysis of stones

URETERIC Stones

Indications:
- Large stone >5mm
- ~~Growing stone~~
- Persistent pain
- Complications: H: ~~gross hematuria~~
  I: Infection
  O: obstruction & may be ARF
  e.g. Calcular anuria

Urgent indications

Procedures:

-upper 1/3:
*<1cm: Push by a catheter to the renal pelvis then ESWL
*>1cm: Open surgery=Lumbar incision→Pyelolithotomy

-middle 1/3:
√ Open surgery: Abernathy's incision
X ESWL: difficult localization
X Uretroscopic extraction: Risky at this site

-lower 1/3:
*<1cm: Uretroscopic Extraction
PICK: by Dormia basket forceps
Or CRUSH: by direct contact lithotripsy then PICK it.
*>1cm: Open surgery
Above the ischial spine: Abernathy's incision
Below the ischial spine: Midline suprapubic

VESICAL Stones

*<2cm → Lithotripsy (or litholapaxy)
Mechanical crushing
OR
Disintegration: by direct contact lithotripsy
Then the fragments are washed (lavaged) outside the bladder

*Open surgery (Cystolithotomy):
Indications
Stone → >2cm
→ Very hard
→ Multiple
U.B. → Another pathology(needs surgery)
Patient → Children
Failure → mechanical crushing
→Disintegration

URETHRAL Stones

Prostatic Urethra:
1. PUSH it to the UB by a bougie then as vesical
2. Open surgery: Transvesical if the above procedure fails

Membranous or bulbous urethra:
1. PICK by:
   a-) Urethral forceps passed through a urethroscope
   b-) Number of **filiform** bougies are **passed** beyond the stone, **twisted** & then **Pulled** out together holding the stone
2. OPEN SURGERY:
If above procedures fails

Thanks Dr. | Ali Hassib

AH	Intracapsular neck femur	Extracapsular neck of femur	Shaft femur	Spine fracture
1- **Definition** (fracture?	√ Intracapsular?	√	√	√
2 -**Mechanism of trauma :** - Direct - Indirect - Pathological	Notes - Twisting - Fatigue	Notes - young >> major - Elderly>> fall on side !!!!هاهاها	 √ Birth , Car √ √	 √ √ + NOTES √
3 -**Classification:** * simple /compound * simple /comminuted * complete / incomplete * shape	Notes - Subcapital - Transcervical - Horizontal (impacted) , oblique (unimp)	 √ √	 √ Crack √ √ Spiral , Transverse , double level	Notes - Morphology - Stability
4 -**Morbid Anatomy**	√	√	√	√ usually in Flexion
5 -**Clinical picture:** * **SYMPTOMS**: - History of trauma - Pain - Swelling - Ecchymosis - Loss of function	**IMPACTED & UNIMPACTED** √ √ .... √	 √ √ √ √ √	 √ √ √ √ √	 √ √ Maybe Maybe ....
* **SIGNS:** - Tenderness - Deformity - Crepitus (Discus)	 √ √	 √ √ ext. rotation& short √	 √ √ √	 √ √ slight Kyphosis ....
* Picture Of **Complications :**	√	√	√	√
* **Ass. Injuries**	....	E.g.: Thoracic or Abd. injuries in case of MultiTrauma pt.		
6 -**Investigations:** - Lab HB & HT	....	>>>>>> In Case of MultiTrauma Patient <<<<<<<<<		
- X- ray (Discuss)	√ + **CT, MRI**	√	√	√ + **CT, MRI**
- Inv for complications e.g. Suspecting arterial injury → Doppler.		√	√	....
- inv for possible ass injuries	....	>>>>As abdominal US in MultiTrauma patient <<<<<<		
7 -**Complications:** - **General**		√	√	Shock , Prolonged recumbancy
- **Early local** Skin Vascular Nerve Tendon Infection Avascular necrosis Visceral	**- Prolonged recumbancy** (Discuss) **- Avascular necrosis** (Discuss)	 √ to compound √ Femoral √ .... √ .... Why Not?	 √ to compound √ Popliteal , Femoral √ Lat. Popliteal n .... √	 Ə The most serious is Spinal cord injury (Discuss) Ж Leveling بساطة
- **late local** Malunion Delayed union Sudek's atrophy Myossitis ossificans Volkmann ' s Joint stiffness Growth disturbance	 **- Delayed union** (Discuss)	 √shortning , adduction , ext. rotation	 √ shortning , varus , ext √ uncommon .... √ (Discuss) √ (Discuss) √ Knee	
- complications of TTT	As plaster of Paris or comp of internal fixation			
8 -**Treatment**: ABCDE in	....	>>>>>> In Case of MultiTrauma Patient <<<<		
A) General :	√ Analgesics	√	√	√ Transportation
b) Specific: Reduction Fixation Indication of ORIF Rehabilitation (after care)	**IMPACTED & UNIMPACTED** (Discuss) الصغير للصغير والكبير للكبير (قاعدة لحياتك)	√ Internal fixation by plate & screws	√ **- Principles** **- Conservative** sliding Thomas **- Operation** indication methods	√ **- Stable** wedge comminuted avulsion **- unstable** **- no cord** **- cord affection**
c) ttt of compound d) ttt of complications	الصغير للصغير والكبير للكبير	√ √	√ √	√ √ **care of paraplegia**
e) ttt of ass injuries	....	√	√	√

AH

AH	CLAVICLE	SUPRACONDYLAR	COLL'S
1- **Definition** (fracture?)	√ Why Middle 1/3? **80%** Lat. **15%** , med.**5%**	√ + type of patient	√ + type of patient
2 -**Mechanism of trauma :**		Indirect:	Indirect
- Direct	√	Extension 99%	Fall on outstretched hand
- Indirect	√√√√	Flexion	
- Pathological	√		Smith' s fracture
3 -**Classification**:			
* simple / compound	√	√	√
* simple / comminuted	√	………	……..
* complete / incomplete	√	√ **50%** greenstick in children	……..
* shape	…………	√ Transverse	√ oblique up & back
4 -**Morbid Anatomy**	√	√	√
5 -**Clinical picture:**			
* **SYMPTOMS:**			
- History of trauma	√	√	√
- Pain	√	√	√
- Swelling	√	√ obscure other physical signs	√
- Ecchymosis	√	………….	……..
- Loss of function	Notes	√ painful & limited	√ painful & limited
* **SIGNS:**			√
- Tenderness	√	√	√ **Diner Fork**
- Deformity	√ mother lactating her baby	√	**no Crepitus** as usually Impacted
- Crepitus (Discus)	√	√	
* Picture Of **Complications :**	√	√	√
* **Ass. Injuries**	E.g.: Thoracic or Abd. injuries in case of MultiTrauma pt.		
6 - **Investigations:**			
- Lab HB & HT	>>>>>> In Case of MultiTrauma Patient <<<<<<<<<		
- X- ray (Discuss)	√	√	√
- Inv for complications e.g. Suspecting arterial injury → Doppler.	Subclavian A.> Doppler Pneumothorax > chest x ray	√	√
- inv for possible ass injuries	>>>>>>>>>As abdominal US in MultiTrauma patient <<<<<<<<<<<		
7 -**Complications:**			
- **General**	………….	………….	…………..
- **Early local**			
Skin	√ to compound	√ compound	√ compound
Vascular	Subclavian A&v	Brachial (discus)	Radial ulnar
Nerve	Brachial plexus	Median , ulnar , radial	Median , carpal tunnel
Tendon	Subclavius muscle	………………	Fraying , Rupture
Infection	√	√	√
Avascular necrosis	………….	………………	………….
Visceral	Dome , Apex , thoracic d	………………	…………
- **late local**			
Malunion	√√√√√√	√ cubits varus	√ redisplacement
Delayed union	√ RARE	…………	………..
Sudek's atrophy	……….	…………	√√√√√√
Myossitis ossificans	……….	√ (Discuss)	…………
Volkmann ' s	……….	√ (Discuss)	…………
Joint stiffness	……….	√ Elbow	Elbow , shoulder , fingers
Growth disturbance	……….	………..	√ + **Madelung**
- **complications of TTT**	As plaster of Paris or comp of internal fixation		
8 -**Treatment**: ABCDE in	√	√	√
A) General :	√ analgesics	√	√
b) Specific:		√ **UNdisplaced & Displaced**	√
Reduction Fixation Indication of ORIF Rehabilitation (after care)	No attempt to reduce Only on a broad arm sling for 3 weeks	ORIF if : ass vascular injury + failed closed reduction DD elbow dislocation	ORIF if : ass vascular injury + difficult closed reduction
c) tt of compound	…………………	√	√
d) tt of complications	√ e.g. underwater seal for pneumothorax	√ (Volkmann)	√ (Sudek's لمبة كحلى)
e) tt of ass injuries	√	√	√

Thank's Dr Ali Hassib

2/5/2007 Edited by Ehab Nawar after Dr. Dina Refaat

TB	Lymphadenitis	Enteritis	Peritonitis	Renal	Bone	Joint
(1) **incidence** precipit. Fact = poor general resistance	** **	** **	** **	Young adult **	Children **	** **
(2) **Etiology** A.Organism B. Route	** Blood or lymph-	** -1ry: ingestion -2ry: blood born or swallowed sputum	** -Local +++ Blood born- (2ry 100%)	** Ascending infect. ((from bladder) Blood born	** Local- Blood+++-	** -Local (from adjac. Bone) Blood-
(3) **Pathology** A. 1ry or 2ry B. types C. Tubercle (revealed by biobsy)	Both Lymph & blood born	Both Ulcerative (2ry) Hyperplastic (1ry)	2ry 3 ACE Ascitic Adhesive Acute millary Caseous encysted	2ry Primary & secondary + عجائب و غرائب= Sterile acid pyuria Ulcerocavernous TB Auto-nephrectomy	2ry -Encysted(brodie's abcess) Infiltrating- -Atrophic(sicca without caseation) Hypertrophic (الوحيد)with new bone formation	2ry Synovial or Osseos ((1ry affection)

TB	Lymphadenitis	Enteritis	Peritonitis	Renal	Bone	Joint
(4) **<u>C\P</u>**						
A. Type of Pt = incidence	**	**	**	**	**	**
B. General (TB Toxaemia)	**	**	**	**	**	**
C. Specific	Lymph \ Blood	Diarrhea-Colic-Loss of wt- + mass in (Hyperblastic)	Eg: **<u>Ascitic</u>** :Doughy ,Swelling Rolled omentum **<u>Encysted:</u>** Local cyst , Swelling	**Frequency** **<u>-Renal</u>** (pain, swelling) **<u>Vesical</u>** (pain, strangulate, tenderness)	Pain Spasm, wasting, swelling, abscess, deformity **(SWSAD)**	Pain **SWSAD**
D.complications						
- cold abscess	**	**	---------	--------	**	**
-Sinus	**	**			**	**
dissemination-	**	**			**	**
plus	Calcification 2ry infection Collar&stud	Perforation> fistula Stricture> IO		Destruction of kidney	Pathological fracture	Deformity- -Pathological dislocation- Paraplegia- Ankylosis-

2

(5) **Investig.** A.lab(CBC, ESR, Tuberclin test, Aspirate Culture) B. CXR C. Specific	** ** LN Biobsy	** ** Ba Meal Follow Through	** ** US, CT, Tapping, Laparoscope	** ** عجائب و غرائب Mouth eaten appearance Golf-hole ureteric meatus Thimble bladder	** ** Plain X-ray Biobsy	** ** Plain X-ray
(6) **Treatment** A.Prophylactic (general Prophylactic measures for TB) B.Anti-TB Drugs C.Indications for surgery	** ** **	** ** **	** ** **	** ** ** عجائب و غرائب Cavernotomy Nephrouretrectomy	** ** ** 1- cold abscess(local rest) 2- failure of medical ttt (Surgery): curettage & bone CHIPS	** ** ** Surgery: Curettage & bone CHIPS + Arthrodesis (fixation of joint for local rest)

3

D. tt of complications	Abscess Sinus	IO Internal fistula	Maybe for IO	--------	**	Paraplegia (local rest)
(7) **<u>Different. diagnosis:</u>**	Other causes of: lymphadenopathy swellings at this site	------- Other causes of: IBD Mass Rt iliac fossa	------ Ascitic: other causes of ascites Encysted: Other causes of Abd cysts Adhesive: Other causes of IO	Other causes of: Frequency Pain in loin Mass	Chronic non specigic osteomyelitis 1ry & metastatic bone disease	Pott's disease of the spine (Diseased hip joint).. flexion deformity dt spasm of psoas ms

Many thanks to Dr : Aly Hassib

presented by: Amira Hassan

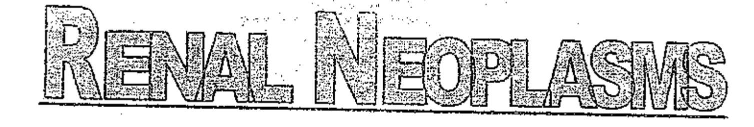
Nahla El Sedik

4



2

RENAL NEOPLASMS

	Renal Cell Carcinoma (Hypernephroma)	Wilm's Tumor (Nephroblastoma)
Introduction:	This is the commonest renal parenchymal tumor representing 75 % of all renal neoplasms.	This tumor arises from embryonic nephrogenic tissue and contains epithelial and connective tissue elements.
Incidence:	✓ ***SEX:*** The male to female ratio is 2:1. ✓ ***AGE:*** The majority of patients are between 50 and 70 yrs. ✓ ***SIDE:*** Bilateral tumors are either synchronous or metachronous and occur in 1-2% of cases.	✓ ***SEX:*** Male to female ratio is equal. ✓ ***AGE:*** Peak incidence is 3 to 4 years.
Etiology:	1.Using tobacco products. فانهبل tobacco كروموسوم شرب 2.Von-Hipple Lindau disease. 3.Loss of short arm of chromosome 3 is a constant Finding.	
Pathology: 	***A) GROSSLY:*** 1. The tumor usually starts in one pole of the kidney (usually the upper). 2. The color of the tumor is yellow due to high lipoid content. 3. Areas of hemorrhage and necrosis. 4. There is an apparent pseudocapsule surrounding the lesion. 5. The tumor infiltrates the renal pelvis early in the course of the disease. Early Infiltration; Pseudocapsule	***A) GROSSLY:*** 1. The tumor appears as a solitary sharply demarcated, apparently encapsulated mass with areas of hemorrhage and necrosis. 2. Renal pelvic invasion is rare. 3. Renal vein invasion may occur Late infiltration
	B) MICROSCOPICALLY: 1. Adenocarcinoma that arises from the cells of the proximal convoluted tubules. 2. Types: ✓ *Clear cell type (usually)*: is due to cholesterol crystals in cytoplasm dissolve during preparation. ✓ *Granular cell type*: is due to the increased mitochondria in the cytoplasm. PCT; Clear cell; Granular cell	***B) MICROSCOPICALLY:*** *The tumor contains both:* 1. Epithelial cells that may form primitive glomeruli or tubules. 2. Connective tissue elements as areas of cartilage, fat, smooth or striated muscles are present. *Degrees of differentiation of the tumor vary from:* **Favorable histology (FH) to Unfavorable histology (UH).** Primitive glomeruli; Tubules; Striated muscles; Fat cells

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	Renal Cell Carcinoma (Hypernephroma)		Wilm's Tumor (Nephroblastoma)
	C) *SPREAD:* ✓ **Direct Spread:** The neoplasm soon infiltrates a) The renal pelvis b)The Zukercandle's (Gerota's) fascia c) May even infiltrate adjacent structures. ✓ **Lymphatic Spread:** i. Tò the L.Ns. along the hilum of the kidney ii. Then to the paraaotic L.Ns. and finally to the thoratic duct. ✓ **Blood Spread:** Hematogenous spread gives rise to metastases in the lungs, bones, and brain. Sometimes a malignant thrombus may be present in the renal vein or extends even to the IVC.		ii c b i a
	D) *STAGING:* ***Robson staging system for renal cell carcinoma*** **Stage I** Tumor is confined to the kidney. **Stage II** Tumor is confined to Zukercandle's (Gerota's) fascia and involves the peri-nephric fat. **Stage III** Tumor involves renal vein and/or regional L.N. + Malignant thrombus. **Stage IV** Distant metastases (Lungs, Liver or Bone).		**D) *STAGING:*** ***National Wilm's tumor staging system*** (الوحيد) This is a **post-nephrectomy** staging on which further management will depend. **Stage I** Tumor is limited to the kidney. **Stage II** Tumor extends beyond the kidney but is completely excised. **Stage III** Residual non hematogenous tumor confined to the abdomen. **Stage IV** Hematogenous metastases. **Stage V** Bilateral renal involvement at diagnosis.
	E) *PROGNOSIS:* According to stage.		**E) *PROGNOSIS:*** BAD.
Clinical picture:		*Type of the patient*	
	50% It is described as being painless, recurrent, profuse and total hematuria. Sometimes the blood passes as tubular clots taking the shape of the ureter. ***Any patient with hematuria should be investigated for the possibility of neoplasmas of the urinary tract.***	**1) Hematuria** بيبقع	Microscopic hematuria occurs, while gross hematuria is not common and denotes bad prognòsis.

	Renal Cell Carcinoma (Hypernephroma)		Wilm's Tumor (Nephroblastoma)
	40% a) Stretch of the renal capsule. b) Passage of blood clots causing ureteric colic. c) Infiltration of the adjacent lumber nerves.	**2) Pain** بيتوجع	One third of patients present with vague abdominal pain.
	30% An irregular hard, renal swelling. ***The classical triad of hematuria, pain and renal mass is present in only 10 % of patients and they indicate an advanced disease.***	**3) Renal Mass** بيكلكع	90% The main presentation an abdominal mass which is smooth, firm and is confined to one side of the abdomen.(discuss the characters of renal mass).
	May be the first presentation e.g. pulmonary or skull deposit.	**4) Metastases** بيوزع	
بينوع	**5) Non Specific Syndromes:** As fever, night sweat, weight loss or anemia.		**5) Hypertension** بيرفع 60% It results from encroachment on the blood supply producing renal ischemia and rennin production.
	6) Secondary Varicocele: A rapidly enlarging varicocele that doesn't empty on elevation of the scrotum		**6) Associations:** Anomalies associated with Wilm's tumor 1. Hemihypertrophy. 2. Genito-urinary anomalies. 3. Aniridia. 4. Increase in the incidence of Neurofibromatosis.
	7) Systemic Syndromes: a) <u>Hypercalcemia</u> occurs in 5 % of cases due to secretion of a parathormone like substance by the tumor or due to the presence of bone metastases. b) <u>Erythrocytosis</u>. c) <u>Amyloidosis</u>.		
Differential Diagnosis:	1.Other causes of mass in Rt or Lt hypochondrium e.g. In Rt: Hepatic mass and retroperitoneal mass In Lt: spleen and retroperitoneal mass. 2. Other causes of renal mass e.g. hydronephrosis. 3. Other causes of hematuria e.g. BPH.		1. Neuroblastoma: **irregular tumor, hard in consistency and may cross the midline.** 2. Hydronephrosis. 3. Multicystic kidney. 4. Infantile type of polycystic kidney. 5. Ewing's sarcoma
Investigations	***A) <u>LABORATORY:</u>*** Complete blood count, liver and renal functions.		***A) <u>LABORATORY:</u>*** - Complete blood count, liver and renal functions. - Urine catecholamines help to rule out neuroblastoma.

	Renal Cell Carcinoma (Hypernephroma)	Wilm's Tumor (Nephroblastoma)
	B) RADIOLOGICAL: **(For both)** 1- *Plain X-ray* (KUB): may show mottled calcification. (In RCC) 2- *IVU:* a. Enlargement of the kidney. b. Elongation, displacement, compression or amputation of a calyx. c. Displacement of the renal pelvis. d. Assessment of function of the other kidney. 3- *Renal Sonography:* • Can differentiate solid from cystic masses. • Can detect liver metastases.	4- *CT scanning:* • It can detect involvement or surrounding structures or involvement of contralateral kidney. • It can detect lymph node enlargement and invasion of the renal vein or inferior vena cava. • It can follow the tumor response to chemo and radiotherapy. N.B. CT scan has Replaced *Angiography* 5- *Chest X-ray:* To detect pulmonary metastases.
Treatment	***A) OPERABLE PATIENTS:*** 1- **Unilateral:** **Radical nephrectomy** is performed. It entails removal of the kidney within its Gerota's fascia together with the ipsilateral adrenal gland. Ligate the vascular pedicle as the first step of the operation for 2 reasons: 1) Prevention of dissemination of malignant cells during manipulation of the tumor. 2) To be able to remove a malignant thrombus from the IVC, if present. *N.B.* Patients who have hypernephroma or Wilm's in a solitary kidney are treated by **partial nephrectomy** with 1-2cm safety margin. 2- **Bilateral:** Patients who have both hypernephroma or Wilm's { Radical nephrectomy in the more affected kidney. / Partial nephrectomy in the less affected kidney.	
	B) INOPERABLE PATIENTS: **(Criteria of inoperability)** 1) Extensive local spread e.g. fixity to the post. abdominal wall and infiltration to the neighboring structures.	2) Extensive lymphatic spread e.g. para-aortic L.N. 3) Blood spread. 4) Unfit patient.
HANY SAQR HANY AHMAD RAMY ALKONAIESY	**Chemotherapy** • Interferon (alpha and gamma) • Interleukin-2 OR **Radiotherapy**.	1- **Resectable:** remaining tumor in nodes or other organs should be marked with surgical clips to facilitate direction of radiotherapy. 2- **Irresectable:** should be treated with chemotherapy and are re-explored; usually the tumor can be removed. ***Scheme of Postoperative management*** If there is no residual focal lesion: adjuvant chemotherapy using actinomycin D, vincristin , adriamycin | If there is residual focal lesion: combination of radiotherapy and chemotherapy is applied. N.B. ttt of associations e.g. genito-urinary anomalies.

23.

	General	Fracture ribs	Pneumothorax	hemothorax	Open pneumothorax(sucking)	Flail chest
introduction	√	√	√	√	√	√
Etiology						
• Blunt	√	√	√	√	√	√
• Penetrating	√	....	√	√	√	...
• Blast	√	√	√	√	√	...
• Iatrogenic	√	....	√	√	.....	...
• Spontaneous	√	√(muscular violence)	√	√	.....	...
Types • Closed or open	√	√ • simple or flail	Simple Open tension	√ • According to source: Systemic pulmonary	....	√
Associated injuries	√المكتوب	• Thoracic • Extrathotacic eg: abdominal				
Dangers that may cause death: • Respiratory insufficiency Upper airway obust. Retention of secretions	√	√(pain,flail chest)	√ • Open(mediastinal flutter ,pendulum respiration) • Tension(mediastinal shift ,↓-ve intrapleural pressure)	√	√	√(paradoxical mov. ,pendulum resp .,mediastinal flutter)
• Circulatory insufficency	√	√(mediastinal flutter)	√(↓intrathoracic negativity,flutter,kink)	√(hge,↓intrathoracic negativity)	√(flutter)	√(mediastinal flutter)
Clinical picture: • سطحية	√	√	√	√	√	√
• History of trauma	√	√	√	√	√	√
• General (assoc.inj)	√	√	√	√(shock)	√	√
• Specific	√	√	√	√	√	√
• Associated inj. eg:abdominal	√	√	√	√	√	√
Investigations: • سطحية(two)	√	√	√	√	√	√
• Of the disease: Routine:hb,hematocrite,bl.gases CXR Needle aspiration Monitoring	√ (specific)	√	√	√	√	√
• For associated inj. Eg:abdominal	√	√	√	√	√	√
Treatment: سطحية	√	√	√	√	√	√
First aid:ABCDE	√	√	√	√	√	√
Definitive	√	√	√	√	√	√
Indic.for thoracotomy	√	....	....	√	...	...
Of associated inj	√	√	√	√	√	√
Of complications	....	....	....	√(empyema)	.....	.....

Bone Tumors

	Osteoclastoma (giant cell tumor)	Osteosarcoma	Ewing's Sarcoma
Introduction	It occurs only in mature bone. Most commonly in the distal femur, proximal tibia, proximal humerus and distal radius, but other bones may be affected.	It is the most common 1ry tumor of bone. It may affect any bone but most commonly involves the long bone metaphysis, especially around the knee and at the proximal humerus.	It's a rare tumor arising from vascular endothelium in BM. It usually occurs in the diaphysis of a long bone and gives rise to marked periosteal reaction.
Pathology	★ ***Site:*** usually from epiphysis ★ ***Gross picture :*** 1. The tumor has a **fleshy red appearance**. 2. It comes quite easily in pieces when it is curetted but it is difficult to be removed completely from surrounding bone. ★ ***Microscopic picture***: multinucleated giant cells scattered in a background of stromal spindle shaped cells which may be responsible for determining the aggressiveness of the tumor. ★ ***The grading system*** (I, II, III) has been discarded & all giant CT are considered potentially malignant. ★ ***Staging:*** Tx Iry tumor can't be assessed. T0 No evidence of 1ry tumor. TI Tumor is confined within cortex. T2 Tumor invades beyond cortex. Nx L.N. can't be assessed. N0 No L.N. metastasis. N1 Regional L.N. metastasis. M0 No distant spread. M1 Evident of distant metastasis.	★ ***Site:*** is in the metaphyses of long bones, where it destroys & replaces normal bone. ★ ***The rule of 80:*** **80%** of in teenage, **80%** in LL, **80%** around the knee, **80%** in the lower end of femur, and **80%** in metaphysis. ★ ***Gross picture:*** 1. The tumor rapidly spreads towards the shaft, but it respects the epiphyseal cartilage and hence does not invade epiphysis or the joint. 2. ***There are 4 main pathological features:*** a. Bone destruction. b. Tumor bone formation *(sun-ray appearance)*. c. Reactive bone formation *(Codman's triangle)*. d. Soft tissue infiltration. 3. ***Types* :*** 1. **Osteolytic type:** Soft, fleshy & vascular with areas of hge and necrosis. 2. **Sclcrosing type:** solid & contains bone. ★ ***Microscopic picture :*** 1. The cell of origin is the primitive osteoblasts. 2. It shows considerable variation: Some areas may have the characteristic spindle cells with a pink-staining osteoid matrix & others may contain cartilage cells or fibroblastic tissue with little or no osteoid. ★ ***Staging:*** (the same) Applicable to all variants except the parosteal osteosarcoma.	★ ***Site:*** In the diaphysis of a long bone. ★ ***Gross picture***: The tumor arises in **the medulla** as a **semisolid grayish white mass** which spread longitudinally and transversely raising the periosteum with subperiosteal new bone formation in successive layers parallel to the shaft ***(onion peel appearance in X-ray)***. ★ ***Cut section:*** Ill-defined grayish white mass with areas of hge and necrosis. ★ ***Microscopic picture:*** Small rounded cells arranged in rosette around the blood vessels. ★ ***Staging:*** (the same)

A.H.

	Osteoclastoma (giant cell tumor)	Osteosarcoma	Ewing's Sarcoma
	expanded Cortex Fig.(35) medullary plug	Epiphyseal plate of Cartilage Codman's Triangle Sun ray bone spicules Fig.(36) osteosarcoma	epiphysis metaphysis Onion-Peel Fig.(37) Diaphysis
Clinical Picture:	✓ **Type of patient:** usually is a young adult (20-40 years of age). ✓ Pain at the end of a long bone. ✓ Sometimes slight **swelling**. ✓ There may be a history of **trauma** and **pathological fracture** in 10 - 15% of cases. ✓ ***On examination:-*** 1. Swelling at the end of a long bone. 2. The consistency depends on the degree of thinning of the expanded cortex; it may be soft, firm or egg-shell crackling sensation. 3. The neighboring joint is often irritated.	✓ **Type of patient:** The incidence is highest between the age of 10 and 20 years, but a second peak occurs after 50 years due to malignant changes in Paget's disease. ✓ **Pain** is usually the 1st symptom; it is constant, worst at night & gradually increases in severity. ✓ Sometimes, patient presents with a **lump** but **pathological fracture** is rare because the patient is bed ridden due to the pain. ✓ ***On examination:*** Local tenderness & in later cases there is a palpable mass and the overlying tissues may appear swollen and inflamed, the regional L.N. may be enlarged.	✓ **Type of patient:** patient age ranges from 10-20 yrs., usually in a tubular bone & esp. in the tibia, fibula or clavicle. ✓ **Pain and swelling** are the chief presenting features. ✓ The **lump** is warm, tender, ill-defined & diaphyseal with **intermittent or continuous pyrexia**. ✓ Blood born metastasis may occur to other bones and in lungs. ✓ Lymphatic spread to regional lymph nodes is common.
Investigations A.H.	1. X-ray: A radiolucent area situated eccentrically at the end of long bone & has the characteristic **soap bubble appearance.** Important is the presence of the *medullary plug* (operculum) at the junction of the shaft with the tumor. The lack of this plug may signify malignant osteoclastoma.	1. **Laboratory:** ↑ESR & ↑ serum level of alkaline phosphatase. 2. **X-ray**:- a- Streaks of new bone formation, radiating outwards from the cortex *(sun-ray appearance)*. b- Reactive new bone forms at the angles of periosteal elevation *(Codman's triangle)*. c- Ghost of cortex: hazy osteolytic areas of cortex. *Both (a) and (b) are typical of osteosarcoma. But they may occasionally be seen in other rapidly growing tumors.*	1. **Laboratory:** ↑ ESR & leukocytosis. 2. **X-ray**: diaphyseal areas of bone destruction with new bone formation in layers along the shaft *(onion peel effect)*. *More often the tumor extends into surrounding soft tissues and may show sunray appearance and Codman's triangle.*

	Osteoclastoma (giant cell tumor)	Osteosarcoma	Ewing's Sarcoma
	3. **CT scans and MRI** will reveal the extent of the tumor, both within the bone and beyond. 4. **Biopsy:** (essential) the edge is ideal - The center is necrotic - To obtain tumor with surrounding normal tissue to determine the microscopic extent of spread. 5. **Arthroscopy** may be helpful to establish affection of articular surface	3. **CT scans and MRI**. (Discuss) 4. **Biopsy**. (Discuss) 5. **Chest X-ray** to detect pulmonary metastasis.	3. **CT scans and MRI.** (Discuss) 4. **Biopsy**. (Discuss) 5. **Bone scan** may show multiple areas of activity in skeleton.
Differential Diagnosis	1. Tuberculosis osteomylitis. 2. Brown tumors of hyperpara. 3. Chronic osteomylitis. 4. Other 1ry bone tumor e.g. osteosarcoma or osteoclastoma (discuss shortly) & Ewing's sarcoma. 5. Metastatic bone tumor.		1. 2rys from neuroblastoma (both have the same MP) usually the patient is below 5 yrs of age. 2. Reticulum cell sarcoma. 3. Osteomyelitis.
Treatment	✓ *The simplest treatment* is **curettage** and **bone grafting**, but recurrence is common. ✓ *The treatment of choice* is **Wide excision**, with replacement by specially designed prosthesis or by bone grafts. ✓ **Amputation** is indicated for tumors which recur with increasing evidence of malignancy. ✓ **Radiotherapy** is reserved for surgically inaccessible tumors. ✓ Excision of the affected bone e.g. osteoclastoma of fibula.	1) Local control of the disease is by either **amputation** or **wide local excision** and prosthetic replacement. *The level of amputation should be proximal to the joints above the tumour, e.g. osteosarcoma at the tibia is treated by an above knee amputation.* 2) **Cytotoxic drugs** have improved the prognosis.	✓ The prognosis is usually poor. ✓ The best results are achieved by combination of - Chemotherapy. - Radiotherapy. - Surgery. ✓ Then a further course of chemotherapy for 1 year is given.

A.H.

RAMY ALKONAIESY



SPLENOMEGALY & HEPATOMEGALY



A.H.		SPLENOMEGALY	HEPATOSPLENOMEGALY	HEPATOMEGALY
CONGENITAL		1.Cysts of spleen.		1.Reidel's lobe 2.Polycystic disease
INFECTIONS	BACTERIAL	1.Paratyphoid. 2.Typhus. 3.T.B. 4.Anthrax.	1.Typhoid. 2.Brucellosis. 3.Syphilis. 4.Abscess.	1.Leptospirosis. 2.Pyogenic cholangitis. 3.Pyelophlebitis. 4.portal pyemia.
	VIRAL	1.Psittacosis.	1.Infectious mononucleosis.	1.Viral hepatitis 2.CMV, 3.Herpes simplex
	PARASITIC	1.Malaria.	1.Bilharziasis. 2.Hydatid cyst. 3.Kala azar.	1.Amebic hepatitis . 2.Toxoplasmosis
BLOOD		1.Thrombocytopenia. 2.Thalassemia major.	1.Leukemias. 2.Hemolytic anemias. 3.Polycythemia vera. 4.Myelofibrosis.	1.Megaloblastic anemia.
METABOLIC		1.Gaucher's disease. 2.Porphyria. 3.Rickets.	Amyloidosis.	1.Wilson's disease. 2.Hemochromatosis . 3.Fatty liver e.g.Reye's,DM 4.Lipid storage. 5.Glycogen storage(von Geirkes).
CIRCULATORY		**Portal vein occlusion**: 1.Neoplastic 2.Thrombophlebilitis	Portal HTN.	**Chronic venous congestion**: CHF, Pericaradial effusion Constrictive pericarditis
TUMOURS	BENIGN	lymphangioma	Hemangioma.	
	MALIGNANT	1.Fibrosarcoma. 2.Waldenstrom macroglobinemia.	Malignant lymphoma.	1.Metastasis. 2.Hepatoma. 3. Holangioma.
COLLAGEN DISEASES			1.Felty's $ 2.Still's disease 3.Sarcoidosis	

Huge spleen:	Enlarged tender liver:
.Portal HTN(Bilharziasis) 2.Thalassemia major .Chronic myeloid leukemia 4. Splenic sarcoma .Gaucher's disease .Kala azar 7.Chronic malaria. .myaloproliferative disorders(PRV,Myelofibrosis)	1.Congestion(HF,Constrictive pericarditis) 2.Infection(Amebic hepatitis & abscess, viral hepatitis,pyogenic abscess) 3.Malignancy

For every problem under the sun, There is the SYSTEM or there is none

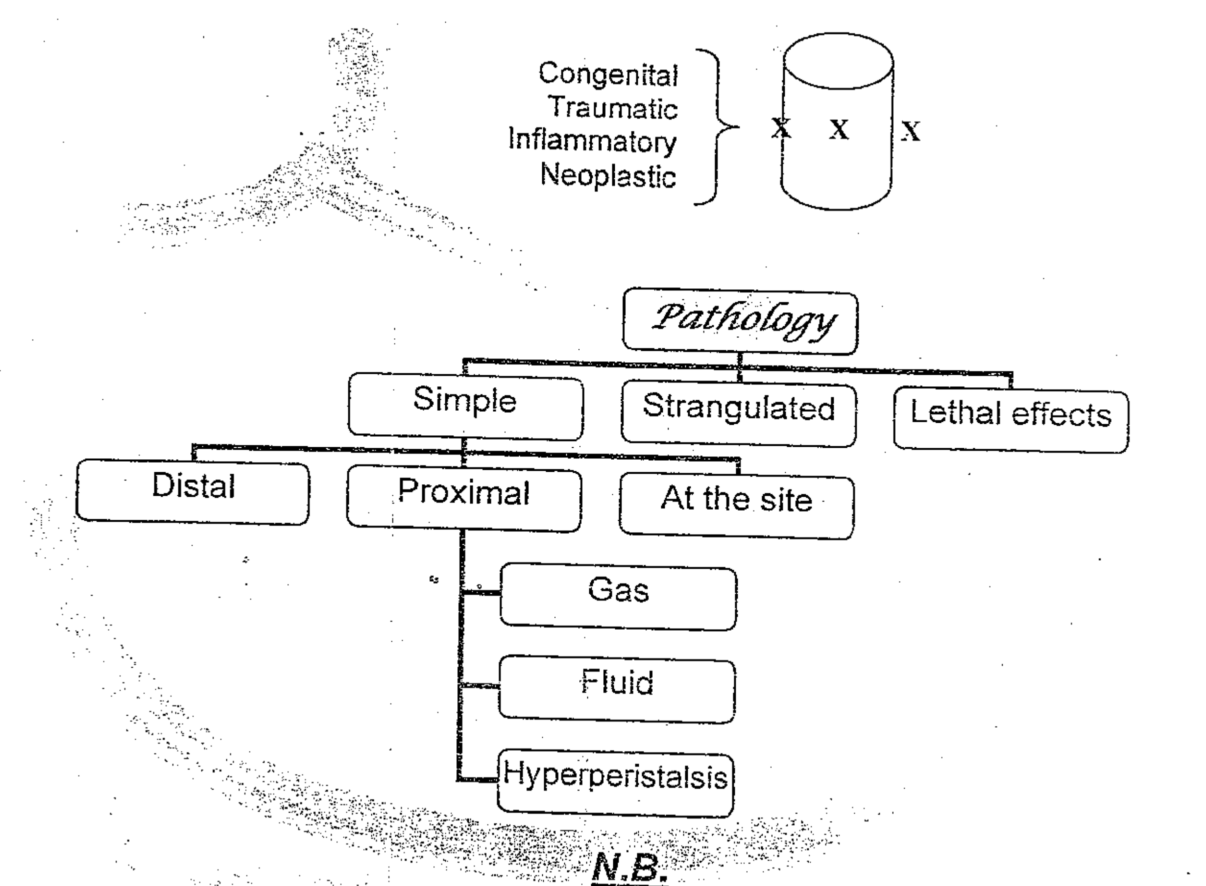
Many Thanks To Dr. Aly Hassib .

DINA HASSAN (D.H.)

AHMED SOLIMAN	General	Spleen	Liver	Intestine	Kidney
Introduction	✓	commnest	2nd		
Etiology:					
1.blunt	✓	✓	✓	✓	✓
2.penetrating	✓	✓	✓	✓	✓
3.blast	✓	✓	✓	✓	✓
4.iarogenic	---------	✓	✓	✓	✓
5.spontaneus	----------	✓	✓	✓	✓
Pathology	-----------	✓	✓	-----------	Early- delayed
Complication	-----------	✓	✓	-----------	delayed
C/P:		Fatal – delayed - classic			
1.History of trauma	✓	✓	✓	✓	✓
2.General:					
a. Shock	✓	✓	✓	✓	✓
-hypovolemic	✓	No	No	✓	✓
-septic					
b. Associated	✓	✓	✓	✓	✓
3.Local:					
-picture of wound	✓	✓	✓	✓	✓
-picture of inter He	✓	✓	✓	✓	✓
Or Peritonitis	✓	No	No	✓	✓
4.Specific C/P	✓	✓	✓	-----------	✓
Investigation: اسطنبة					
	Indication :				
1. Hb & Hematocrit	✓	✓	✓	✓	✓
2. Plain x-ray	✓	✓	✓	✓ Air under diaphram	✓
3. U/S	✓	✓	✓	✓	✓
4. C.T	✓	✓	✓	✓	✓
5. DPL	✓	✓	✓	✓	IVP
6. Diagnostic laproscopy	✓	✓	✓	✓	DMSA
7. Inv for possible associated injury eg. Chest x-ray	✓	✓	✓	✓	✓
TTT:	Indication :				
1. A B C D E	✓	✓	✓	✓	✓
2. Antibiotic	✓	✓	✓	✓	✓
3. Incision	✓	✓	✓	✓	✓ SSOAP
4. Exploration	✓	✓	✓	✓	✓
5. Specific ttt	✓	✓	✓	✓	✓
6. TTT of associated injurys	✓	✓	✓	✓	✓

GENERAL I.O.

- ★ ***Definition.***
- ★ ***Classification.***
- ★ ***Etiology.*** →
- ★ ***Pathology.*** →
- ★ ***Clinical Picture:***
  - o Symptoms
  - o Examination
    - General
    - Abd. Inspection
    - Abd. Palpation
    - Auscultation
    - Rectal exam.
  - o Of strangulation
  - o Of complications.
- ★ ***Investigations:***
  - o Laboratory.
  - o Plain X-ray.
  - o U/S.
  - o Double enema.
  - o Br. Enema.
- ★ ***TTT:***
  - o Pre-operative.
  - o Conservative.
  - o Operative.



INTESTINAL OBSTRUCTION

	INTUSSUSCEPTION	VOLVULUS
Definition	★ Invagination of a segment of the bowel (intussusceptum) into the lumen of an adjacent one (intussuscepient). ★ It's a type of strangulation obstruction because the mesenteric vessels of the inner layer are stretched and compressed by the outer layer.	Twisting of loop of bowel around its mesenteric axis.
Classification	*A) **<u>ANATOMICAL TYPES:</u>*** 1) **Ileocecal intussusception:** The commonest, ileum is invaginated into the cecum with the ileocecal valve forming the apex. 2) **Ileo-ilcal:** Ileum is invaginated into the ileum. 3) **Colo-colic:** Colon is invaginated into the colon. 4) **Ileo-colic:** Ileo-ileal intussusception advancing till its apex enters the colon. 5) **Retrograde** e.g. jejunogastric intussusception after Gastrojejunostomy. *B) **<u>CLINICAL TYPES:</u>*** 1) **Infantile type:** The commonest, usually ileocecal type. 2) **Adult type:** Rare, due to organic lesion at the apex as polypoid tumor or parasites.	***<u>ACCORDING TO SITE:</u>*** ★ Commonest in the sigmoid colon. ★ Other sites includes: cecum, stomach, the small intestine of Midgut volvulus of the neonates.
Etiology	*A) **<u>Infantile type:</u>*** 1. Idiopathic i.e. the cause is not known. 2. Infection: Adenovirus causes swelling of the lymphoid follicles in the terminal ileum that protrude into the lumen acting as a foreign body which is forced distally along the gut. This may explain its frequency at the age of weaning. *B) **<u>Adult type:</u>*** there is an evident cause at the head of the intussusceptum e.g. polyp, Meckel's diverticulum, or submucous hematoma in a patient with Henoch Schnolein purpura. *In elderly persons carcinoma of the colon may cause colo-colic intussusception.*	***<u>Predisposing factors to sigmoid volvulus:</u>*** ★ A long sigmoid colon. ★ A narrow base of sigmoid mesocolon. ★ A heavily loaded sigmoid as a result of chronic constipation. ★ Adhesions at the apex of the sigmoid loop facilitate its twisting.
Pathology	★ ***Proximally:*** Distension (gaseous & fluid), Hyperperistalsis. (Discuss) ★ ***Distally:*** Empty collapsed intestine, Red current jelly.	★ ***<u>Proximally:</u>*** Distension (gaseous & fluid), Hyperperistalsis. (Discuss) ★ ***Distally:*** Empty collapsed.

	INTUSSUSCEPTION	VOLVULUS
Pathology ▪ Proximally ▪ Distally ▪ At site ▪ Pathology of strangulation ▪ General lethal effects	★ ***At site:*** *The ileocecal valve is invaginated into the cecum and may travel along the whole colon and may protrude through the rectum and anus.* o **<u>An intussusception consists of:</u>** 1) **Intussusceptum:** Consists of an entering layer and a returning layer. 2) **Intussuscepient:** Is the outer ensheathing layer. 3) **Apex:** junction between the entering and the returning layer. It is always constant at the ileocecal valve. 4) **Neck:** Is the junction between the ensheathing & returning layer. o The mesentery containing the blood vessels maybe compressed between the entering and the returning layers → ischemia and gangrene. ★ ***Pathology of strangulation.*** (Discuss) ★ ***General lethal effects.*** (Discuss)	★ ***At site:*** *The upper loop usually falls in front of the lower in anticlockwise direction resulting in a combination of **<u>obstruction</u>** together with **<u>occlusion of the main vessels</u>** at the base of the involved mesentery.* o It is, therefore, a form of closed loop obstruction & of strangulation obstruction. *1.* *<u>Closed loop obstruction:</u>* closed loop is formed within which the pressure rises rapidly, with high risk of gangrene and perforation. 2. *<u>Strangulation obstruction:</u>* Interference with the blood supply occur if it rotates more than 1.5 turn → strangulation and perforation follows with rapid fatal peritonitis. ★ ***Pathology of strangulation.*** (Discuss) ★ ***General lethal effects.*** (Discuss)
Clinical picture ▪ Type of pt. ▪ Symptoms 1. Pain 2. Vomiting 3. Distension 4. Absolute constipation ▪ Signs 1. General 2. Abd. Inspec. 3. Abd. Palpation 4. Auscultation 5. Rectal exam ▪ Picture of strangulation ▪ Picture of complications	★ ***Type of patient:*** The common age is between 3 and 12 months. Male: Female = 2:1. ★ ***Symptoms:*** (لاتكتب الجدول) 1. Pain: Attacks of colicky pain denoted by screaming, drawing the legs up to the abdomen, and pallor. The attacks alternate with intervals of apparent wellbeing. 2. Vomiting. 3. Distension. 4. Passage of bloody mucus (that looks like red current jelly) per rectum. ★ ***Signs:*** *(Examination)* *1.* *<u>General exam. :</u>* showed Hypovolemic & septic shock. *2.* *<u>Abdominal exam. :</u>* o Inspection: Distention is not an early feature. o Palpation: There is emptiness of the right iliac fossa ***(Sign de Dance)***. o Auscultation: Accentuated intestinal sounds. 3. *<u>Rectal exam. :</u>* reveals the bloody mucus and sometimes the head of the intussusception can be felt. ★ ***Picture of strangulation.*** (Discuss) ★ ***Picture of complications.*** (Discuss)	★ ***Type of patient:*** sigmoid volvulus is common in elderly constipating male. ★ ***Symptoms:*** 1. Pain: colicky and caused by the hyperperistalsis. 2. Vomiting is late. 3. Distension is huge & peripheral. 4. Absolute constipation is early. ★ ***Signs:*** *1.* *<u>General exam. :</u>* showed Hypovolemic & septic shock. 2. *<u>Abdominal exam. :</u>* o Inspection: huge distention. o Auscultation: Accentuated intestinal sounds. *3.* *<u>Rectal exam. :</u>* Empty rectum, blood may be found on tip of examining finger. ★ ***Picture of strangulation.*** (Discuss) ★ ***Picture of complications.*** (Discuss)

	INTUSSUSCEPTION	VOLVULUS
Investigations	a. <u>**Laboratory investigations:**</u> 1- Blood picture. 2- Blood urea, Serum electrolytes. b. <u>**Imaging investigations:**</u> 1- <u>*Plain X-ray abdomen*</u> 2- <u>*Ultrasound examination*</u> 3- <u>*Br enema:*</u> (In cases of doubtful diagnosis). Shows a **cylindrical filling defect** at the area of intussusception and there is **arrest of further progress** of the contrast *(claw sign or meniscus sign, and coiled spring sign)*. c. <u>**Double enema test**</u> (Discuss)	a. <u>**Laboratory investigations:**</u> 1- Blood picture. 2- Blood urea, Serum electrolytes. b. <u>**Imaging investigations:**</u> 1- <u>*Plain X-ray abdomen:*</u> Plain X-ray shows the hug gas-filled sigmoid loop that may look like the inner tube of car tire ***(Omega loop)***. 2- <u>*Ultrasound examination*</u> 3- <u>*Br enema.*</u> c. <u>**Double enema test**</u> (Discuss)
D.D.	1) **Gastroenteritis:** There is fever, vomiting, diarrhea & shock is very late, no mass felt on abdominal or P-R examination. 2) **Rectal prolapse:** No manifestations of intestinal obstruction, a finger cannot pass around the protruding mass. *PROLAPSE* *INTUSSUSCEPTION* 3) **Henoch-Schnolein purpura:** No manifestations of I.O. + purpuric eruptions. 4) **Other causes of I.O. in this age group e.g. Strangulated hernia.**	1) **Other causes of acute abdomen** 2) **Other causes of I.O. in this age group e.g. sigmoid carcinoma.**
Treatment ▪ Preoperative ▪ Conservative ▪ Operative	<u>***Preoperative preparations:***</u> (Discuss) <u>***Conservative treatment:***</u> **(Hydrostatic reduction)** ★ <u>*Indications:*</u> Early cases that show no evidence of peritonitis: ★ <u>*Methods:*</u> *1)* Barium (or air) is run in per rectum and is followed radiologically under the screen. The diagnosis is established and the reduction, affected by the pressure of the barium column, is monitored until it is complete *2)* This is confirmed by visualization of appendix and the terminal ileum. ★ <u>*Contraindication:*</u> Late cases or presence of abdominal distention or rigidity. ★ <u>*Complications:*</u> Reduction of a gangrenous intussusception or perforation of the bowel. <u>***Surgical treatment:***</u> ★ <u>*Indications:*</u> When hydrostatic reduction fails or the condition is advanced from the start. ★ <u>*Method:*</u> o At laparotomy, the head of the intussusception is squeezed backwards out of the containing colon. o The proximal ileum should never be pulled backwards as this may lead to intestinal tears. →	<u>***Preoperative preparations:***</u> (Discuss) including proper colonic preparation in case of elective operation. <u>***Conservative treatment:***</u> ★ <u>*Indication:*</u> Early cases with no evidence of gangrene. ★ <u>*Method:*</u> Rectal tube is passed through a sigmoidoscope tc untwist the sigmoid loop. Success will lead to gush of gas and fluid stools. The tube is left in place for later elective resection of the long sigmoid after proper preparation. <u>***Emergency Surgery:***</u> ★ <u>*Indications:*</u> 1) Failure of conservative. 2) Late presentation. ★ <u>*Method:*</u> *(Mention differences between viable & non viable gut)* o Gangrenous sigmoid is resected, the proximal end is brought out to the skin as a terminal colostomy and the distal end is closed by sutures (Hartmann's procedure); for later elective anastomosis. o Viable sigmoid is untwisted and either fixed to the posterior abdominal wall or resected as above. o The presence of gangrene or irreducible intussusception is an indication for bowel resection and anastomosis. o Important to check the whole bowel as there may be multiple intussusceptions. o *Mention differences between viable & non viable gut*

	ADHESIVE INTESTINAL OBSTRUCTION	**PARALYTIC ILEUS**
Definition	Arrest of downward propulsion of intestinal contents 2ry to intrapritoneal adhesions which constitute the commonest causes of intestinal obstruction in developed countries.	Arrest of downward propulsion of intestinal contents due to loss of propulsive power of the bowel leading to functional obstruction.
Etiology	Result from:- ★ ***Post-operative:*** previous abdominal surgery. It is commoner when talc is used to lubricate the surgical gloves. ★ ***Post-inflammatory*** adhesions e.g. after septic or tuberculous peritonitis. ★ ***Congenital bands.*** ★ Adhesions develop at the sites of ischemia of the bowel or at the scars of the abdominal wall.	★ ***Reflex inhibition of intestinal motility*** following abdominal operations, spine fractures, and retroperitoneal hemorrhage. *This may be due to sympathetic over action.* ★ ***Metabolic abnormalities*** as hypokalemia, uremia, and diabetic ketoacidosis. ★ ***Peritonitis*** due to direct toxic effect on the nerve plexuses of the intestine. ★ ***Drugs*** as anticholenergics (e.g. probanthine)
Pathology ▪ **Proximally** ▪ **Distally** ▪ **At site** ▪ **Pathology of strangulation** ▪ **General lethal effects**	★ ***Proximally:*** Distension (gaseous & fluid), Hyperperistalsis. (Discuss) ★ ***Distally:*** Empty collapsed intestine. ★ ***At site:*** o ***Adhesions*** may be multiple or solitary & have a tendency for recurrence. o *Obstruction* occurs by kinking or by direct obstruction of a small intestinal loop. o *Strangulation* may result from compression of the loop's blood supply. A band may induce localized ischemic necrosis by direct pressure on the intestine → perforation & peritonitis. ★ ***Pathology of strangulation.*** (Discuss) ★ ***General lethal effects.*** (Discuss)	★ There is marked distension of the small and large intestines with gas and fluid. (Discuss) ★ ***General lethal effects:*** The patient suffers a severe loss of fluid & electrolytes through accumulation in the distended bowel & through vomiting.
Clinical picture ▪ **Type of pt.** ▪ **Symptoms** 1. Pain 2. Vomiting 3. Distension 4. Absolute constipation ▪ **Signs** 1. General 2. Abd. Inspec. 3. Abd. Palpation 4. Auscultation 5. Rectal exam ▪ **Picture of strangulation** ▪ **Picture of complications**	★ ***Type of patient:*** ★ ***Symptoms: (Discuss + اكتب الجدول)*** ★ ***Signs:*** *(Examination)* 1. *General exam. :* showed Hypovolemic & septic shock. 2. *Abdominal exam. :* o Inspection: Abdominal distention & there is a scar of previous abdominal surgery. o Auscultation: Accentuated intestinal sounds. 3. *Rectal exam. :* Empty rectum. ★ ***Picture of strangulation.*** (Discuss) ★ ***Picture of complications.*** (Discuss)	★ ***Type of patient:*** ★ ***Symptoms:*** 1. Pain: is absent and is replaced by sense discomfort and fullness. 2. Vomiting. 3. Abdominal distention. 4. Absolute constipation. ★ ***Signs:*** 1. *General exam. :* showed Hypovolemic shock. 2. *Abdominal exam. :* o Inspection: Abdominal distention. o Palpation: -ve. o Auscultation: ~~Accentuated intestinal sounds~~. 3. *Rectal exam. :* Empty rectum. ★ ***Picture of complications.*** (Discuss)

	ADHESIVE INTESTINAL OBSTRUCTION	**PARALYTIC ILEUS**
Investigations	a. <u>Laboratory investigations:</u> 1. Blood picture. 2. Blood urea, Serum electrolytes. b. <u>Imaging investigations:</u> 1. *<u>Plain X-ray abdomen</u>* (discuss) 2. *<u>Ultrasound examination</u>* 3. *<u>Br enema</u>* (to detect colonic obstruction) c. <u>Double enema test</u> (Discuss)	a. <u>Laboratory investigations:</u> 1. Blood picture. 2. Blood urea, Serum electrolytes. b. <u>Imaging investigations:</u> 1. *<u>Plain X-ray abdomen:</u>* Multiple gas fluid levels. The gaseous distention includes the whole small and large intestines. 2. *<u>Ultrasound examination</u>*
D.D.	**1) Other causes of acute abdomen** **2) Other causes of I.O. in this age group e.g. Strangulated hernia.**	**Other causes of I.O.** *(اكتب الجدول الثاني)*
Treatment ▪ **Preoperative** ▪ **Conservative** ▪ **Operative**	***<u>Conservative treatment:</u>*** ★ *<u>Indications:</u>* Early cases with no evidence of strangulation. ★ *<u>Method:</u>* o Naso-gastric suction, and intravenous replacement of losses (drip and suck). o Close observation is necessary to judge success which is indicated by resolution of pain and distention, passage of flatus, and the retrieval of clear gastric aspirate. ***<u>Surgical treatment:</u>*** ★ *<u>Indication:</u>* 1) Conservative treatment fails. 2) If there is evidence of strangulation or gangrene. ★ *<u>Method:</u>* Adhesions are divided and the bowel viability is assessed and dealt with accordingly.	***A) <u>Preventive:</u>*** 1. Preoperative correction of biochemical disturbances. 2. Gentle handling of the intestine during surgery. 3. For major abdominal surgery, a naso-gastric tube is used to decompress the bowel postoperatively. ***B) <u>Curative</u>*** 1. ***<u>Preoperative preparations:</u>*** Drip and Suck are the essentials of treatment. (Discuss) 2. Correction of underlying metabolic abnormalities and hvpoproteinemia 3. If a postoperative ileus is unduly prolonged for more than 3 days, one should think of peritonitis from a leaking intestinal anastomosis and of mechanical obstruction from early fibrinous adhesions. Both Conditions necessitate reoperation.

A.H.

Anal Canal

Many thanks to Dr. A.H. By: Rania Haidara

	Piles	Fissure (شرخ) Acute	Fissure (شرخ) Chronic	Fistula (ناصور)	Perianal suppuration or abscess (خراج) Primary	Perianal suppuration or abscess (خراج) Secondary	Rectal prolapse
Etiology	Primary or secondary **A)Secondary piles are due to:** 1) Pregnancy. 2) Rectal carcinoma. **N.B.** Portal hypertension leads to anorectal varices. **B) Primary piles:** Occur without any organic cause. 1) Weakness in the wall of vein (hereditary) 2) Chronic constipation & straining. 3) Anatomical factors: a) Long column of venous bl. b) The veins are constricted as they pass through the ms. coat. c) Lax submucosa.	**Longitudinal tear in the mucous membrane lining the anal canal as a result of:** 1)Hard stool. 2)Foreign body. 3)Crohn's disease.		**Factors that help chronicity:** 1) The anal glands act as a reservoir for infection. 2) Internal opening 3) Fecal material.	Infection of the anal glands. **Abscesses are classified anatomically into:** 1) Perianal abscess (60%). 2) Ischiorectal abscess (30%). 3) Submucous abscess (5%). 4) Pelvirectal abscess (5%).	After Crohn's disease.	A) **Partial prolapse:** ***Common in children due to:** 1)Loss of the curve of sacrum. 2) Loss of weight. 3)Straining. ***May occur in adults due to:** 1)Advanced cases of hemorrhoids. 2) Rectal polyp. B) **Complete prolapse:** The condition is commoner in elderly, particularly females.
Pathology	- Each pile consists of a dilated vein with an artery, CT & covered with mucosa. - They are arranged at 3-7-11 o'clock	***Site:** 90% of fissures are posterior due to Y-shaped arrangement of the superficial part of external sphincter with absence of support posteriorly. Simple superficial linear tear along axis of anal canal. No fibrosis. Ms. of anal canal are spastic & not fibrosed (relax under anesthesia) Pain leads to ms. spasm leading to more pain. Acute fissure usually doesn't heal spontaneously.	Deep The edges are fibrosed & indurated. Organic fibrosis of the anal sphincter. Associated sentinel pile at its lower end (due to infection & oedema)	**Classification of anal fistulae:** A) **Goodsall's rule** B) **Old classification:** **1) Low anal fistulae:** The internal opening is below the anorectal ring. **2) High anal fistulae:** The internal opening is above the anorectal ring. C) **Recent classification:** See ttt	Infection of these glands leads to formation of intersphincteric abscess which may spread: 1) **Downwards:** Perianal abcess 2)**Outwards:** Ischiorectal abcess 3)**Inwards:** Submucous abcess 4)**Upwards:** ~~High intersphincteric~~ abcess		**Theories:** Many theories e.g. It is case of sliding hernia due to weakness of the pelvic floor ms.

C / P	Swelling	*<u>1st degree:</u> No prolapse, pt. may present by bleeding only. Diagnosed only by proctoscopy. *<u>2nd degree:</u> prolapse only during defecation , reduced spontaneously at the end of defecation. *<u>3rd degree:</u> prolapse during defecation & the pt. has to manually reduce them. *<u>4th degree:</u> permanent prolapse of piles.	———	———	Present	Prolapse with same degrees as piles.
	Pain	Absent except with complications	Sharp, agonizing, felt during & after defecation	———	Severe	
	Discharge	+ pruritis	Scanty & serosanguinous	Excessive	———	Mucous
	Bleeding	Bright red not mixed with stools which occurs at first with defecation but later at anytime	Slight i.e. streaks of blood	Slight	———	Present
	Others		Constipation & reflex symptoms (dysuria & dysmenorrhea)	History of an abscess.		
On examination		*<u>P/R:</u> 1) Piles are not felt but seen through proctoscopy. 2) Exclude rectal carcinoma.	**Seen** with severe spasm of anal sphincter. (Don't do PR). **Felt** fibrosed with sentinel pile below.			(Partial / Complete) **Length of prolapse**: < 5 cm / > 5 cm **Mucosal corregations**: Absent / Often present **Prolapse thickness**: Mucosa only / Rectal ms. thickness can be felt.
Complications		1) Bleeding. 2) Strangulation of prolapsed pile. 3) Gangrene. 4) Ulceration & infection. 5) Sloughing of strangulated piles. 6) Fibrosis of thrombosed pile. 7) Portal pyemia.	Abscess, fistula, fibrous contracture of the anal sphincter leading to stricture formation.			As piles
DD			*<u>DD of an anal fissure:</u> 1) Tuberculous ulcers & syphilis 2) Carcinoma. *<u>DD of painful anal conditions:</u> 1) Anal fissure. 2) Peri-anal suppuration. 3) Prolapsed strangulated piles. 4) Acute peri-anal hematoma. (External piles) 5) Carcinoma of the anus.			1) Prolapsing hemorrhoids. 2) Prolapsing polyp. 3) Prolapsing intussusceptions.

<u>Investigations of anal fistula:</u> (الوحيدة)

1) **<u>Proctoscopy:</u>**
shows the internal opening of the fistula
2) **<u>Colonoscopy &/or barium enema:</u>**
to exclude an underlying specific cause.
3) **<u>Fistulography.</u>**

Treatment	Treatment is either conservative, injection or surgical. **1) Conservative treatment:** Indicated in mild 1ry or 2ry piles. It consists of light non irritant diet, laxative, astringent ointment or suppository e.g. haemamelis. **2) Injection sclerotherapy:** ***Indicated in:** Uncomplicated 1st or early 2nd degree. ***Method of injection:** 5-20% phenol in almond oil is injected submucous & extravenous opposite the pedicle of the pile 3-5 cc are injected & one pile each time is injected at one week interval. ***Complications of injection:** 1)Sloughing due to injection in mm. 2)Submucous abscess. 3)Stricture. 4) Secondary hge. 5) Pain due to injection too low. **3) Rubber band ligation:** **(Barron's).** **4) Cryosurgery.** **5) Photocoagulation.** **6) Surgical ttt:** ***Indicated in:** 3rd & 4th degree piles. **Treatment of prolapsed strangulated hemorrhoids:** 1) If the case is diagnosed early, surgical intervention is done. 2) If the diagnosis is delayed, conservative measures (rest in bed, antibiotics, analgesics, frequent warm baths, decongestive ointments & local compresses by lead acetate.) * Some surgeons perform maximal anal dilatation (MAD) under anesthesia to relieve the sphincteric spasm. (Not to be done in elderly & multiperous women.)	**Mainly conservative** 1) Relieve constipation by liquid paraffin & dieting. 2) Anesthetic ointment before defecation. (Must explain to the pt.) 3) Digital dilatation under anesthesia to relax the sphincter & prevent associated spasm. * If these measures fail, internal sphincterotomy is done under general anesthesia.	**Mainly surgical** **1) If the fissure is NOT very chronic:** - A lateral internal sphincterotomy operation is successful. - The internal sphincter is divided at the 3 o'clock position. - Relief of the spasm of the internal sphincter will allow healing. - The operation can be done by the closed or open method. **2) If the fissure is chronic with a sentinel pile:** - The best procedure is to do fissurectomy & posterior internal sphincterotomy. - A triangular segment with its apex upward & including the fissure, anal papilla & sentinel pile is excised. - The operation should include internal sphincterotomy as well.	**Recent classification:** 1) Inter-sphincteric 2) Trans-sphincteric For 1 & 2 → Do fistulectomy or fistulotomy 3) Supra- sphincteric (2 staged opeartion) 4) Extra-sphincteric -Difficult -Colostomy & staged operation.	Urgent surgery by drainage **(don't wait for fluctuation)** under general anesthesia is performed. **N.B. The pt. who had drainage of an anorectal abscess should be warned that he may develop a perianal fistula later on.**	**1) In children:** - Surgery is rarely indicated. ***Simple measures are helpful:** - Improving the nutritional status. - Avoid squatting. **2) In adults:** **A) Mucosal prolapsed:** As piles. **B) Complete prolapse:** Various surgical procedures include: **i) Rectopexy** **(Charles Well's operation)** **ii) Other option:** Treated as hernia by repair of pelvic floor ms.

***Pilonidal sinus:**
Etiology: 1) **Congenital theory** 2) **Acquired theory:** Hairs are drawn through the skin.
Clinical features: Discharge maybe bloody & external opening.
DD: Perianal fistula
Treatment: **1) Pilonidal abscess:** initially treated by incision & drainage of pus.

***Hemorrhoids (Piles):** In Greek, hem means blood while rhoos means flowing.
In Latin, pile means a ball. Piles may be internal or external according to its relation to the anal orifice.
***External piles** = Acute perianal hematoma.

Management of Burns

Prepared & Typed by: Ahmed El.Sherbiny
Ahmed Bravo

1st aid management:
- Airway: should be maintained patent.
- Analgesic: should be strong as 50ml pethidine IV.
- Tetanus prophylaxis.
- Tape water or saline at room temp. poured on burnt area for 15 min. to decrease edema and relief pain.

Minor Burns:
- **Criteria:** less than 15% in adults
  less than 10% in children
- Treated as out patient.
- A Analgesics
- A Antibiotics (systemic)
- Dressing using proper local chemotherapeutic.

Major Burns: & most moderate (except superficial)
- **Criteria:** Major: more than 30%
  Moderate: Adults 15% - 30% & Children 10% - 30%
- Administered to burn unit.
- C Canula: wide bore I.V. canula is inserted rapidly
- C Catheter: folley's uretheral catheter is inserted to monitor urine output.

Resuscitative Fluid Therapy

Amount and rate of fluid replacement depend on the weight of the patient and % of total body surface area injured.
- Amount infused during the 1st 24 hours is 2ml/percent surface area burn/kg bodyweight. Half the amount calculated is given over the 1st 8 hours & the other half over the next 16 hours. Also half the amount calculated is given over the 2nd day.

Formulas:

Evan's Formula: 1st day: 1 ml/kg/% normal saline + 1ml/kg/% colloid + 2000 ml .. glucose. (the daily caloric needs)
2nd day: 1/2 ml/kg/% normal saline + 0.5ml/kg/% colloid + 2000 ml glucose

Modified Brook's Formula:
1st day: 2-3ml/kg/% lactated Ringer + 2000 ml glucose.
2nd day: 1ml/kg/% lactated Ringer+0.5ml/kg/% colloid+2000ml glucose

Parkland's Formula:
1st day: 4ml/kg/% lactated Ringer: 1/2 amount over 1st 8 hours
1/4 amount over 2nd 8 hours
1/4 amount over 3rd 8 hours

Duration: It is essentially given for the first 48 hours.

Monitored by: 1- Regular check up of vital signs
2- Urine output should be 30-60 ml/hour
3- C.V.P

N.B.:
- Max. % calculated in all formulas is **50%** to avoid serious over infusion.
- **Blood** administration can be started after 48hours guided with hematocrit value
- **Oral intake** is avoided in 1st 48 hrs to avoid GIT complications.
- Extensive burned patients are liable to have serious catabolic status. I.V. **hyperalimentaion** makes it easy to correct this problem and to support the patient nutritionally during this critical period.

Local Wound Care

- The aim is to avoid infection.
- **Constricting eschars** 2be released immediately.
- **Urgent fascitomy** in deeper burns may be limb saving.
- **Topical antimicrobials** should be applied after cleaning & conservative debridement.

Wound is managed by one of the following:

1. Exposure method: requires isolation in aseptic atmosphere.
Advantages: a. more comfortable to patient.
b. avoid repeated change of dressings.
c. inhibits bacterial growth by dry air.
Indications: a. Burns of face, neck & perineum.
b. Burns involving one side of the trunk.

2. Bulky Occlusive dressing (the occlusive method):
Since it is usually very painful; dressing change can be done by Hubbard Tank or under anesthesia (especially in children).
- *Both methods are equally effective*
- *All partial thickness burns should heal within 2-3 weeks*
- *Full thickness burns require closure by autogenous skin grafts.*

Biological Dressings:

Indications:	**Examples:**
a. Autograft is not enough	a. Allografts (cadiveric)
b. Local wound condition is not favorable.	b. Xenograft Skin (Pig's)
	c. Amniotic membrane.

Advantages: a. Wound will be less painful.
b. Minimize fluid and protein loss. c. Control infection.

- Applied after removal of eschar and are changed every 3-4 days.
- Only temporary and permanent closure only by autograft skin.
- Artificial skin substitutes are used with promising results.

Surgery

Time: 3-5 days post-burn (b4 bacterial contamination)
Method: tangential excision of damaged dermis & grafting is done either immediate or late when healthy granulations appear.
Indications: Deep burns

Prognosis Of Burn

- **Burn related factor:**
  a. Extent: rule of 9
  b. Depth
  c. Type of burn: high tention electric burn has the highest mortality rate
  d. Site of burn
  e. Infection
  f. Associated injuries
- **Patient Related:**
  a. Age: extremes have bad prognosis.
  b. Coexistant cardiopulmonary diseases.
- **TTT Related Factor:**
  ttt in special burn centers gives better prognosis.

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·Post. op Comp.

Name of surgery	*Haemorrhage*	✓ *Infection*	*Injury*	Paralytic ileus \ DVT\AGD\Incisional hernia	*Specific complication*
Hernia	✓	✓ mesh	Vas vessels	×	Recurrence -chronic inguinodynia
Hydrocele	✓	✓	Testis Epidedmis	×	Recurrence
Varicocele	✓	✓	Vas Testicular artery	×	Recurrence
Circumcision	✓ *	✓	Glans urethra	×	Over circumcision Under circumcision phimosis
Appendectomy	✓	✓ Potentially contaminate wound	cecum	Incisional hernia	
Splenectomy	✓	✓ Subphrenic abcess ✓ overwhelming	Tail of pancrease Gastric wall	Incisional Hernia Paralytic ileus	Portal vain thrombosis
cholecystectomy	✓ *	✓ Subphrenic abcess	CBD	Paralytic ileus	Post cholecystectomy syndrome
Colostomy	✓	✓	Marginal artery	Paralytic ileus	Retraction Prolapsed Stricture Internal herniation Skin excoriation
Piles	✓ Primary ✓ Reactionary ✓ secondry	rarly	Sphencteric anorectal ring	×	Stricture Reflex retention of urine Severe pain
Varicose veins	✓	✓	Saphenous Nerve Femoral Vain		Recurrence
Thyroidectomy	✓	✓	Recurrent laryngeal External laryngeal Trachea(surgical emphsyma Parathyroid(vascul arinjury/remove)	×	Postoperative crisis Recurrence Hypothyroidism Keloid Progressive exophthalmos
Radical mastectomy	✓	✓	Axillary vessels Cephalic Vain N.to serratus N. to latissmus	×	Briedel's scar Seroma
Kidney operations	✓	✓	Peritoneum Colon/deudenum Subcostal N.	Incisional hernia	Urinary fistula
BPH	✓ Primary ✓ Reactionary (clot retention)	✓	Sphincters Pudendal N.	×	T.U.R syndrome stricture
Amputation	✓	✓	——	×	Phantom limb Redundant soft tissue Spur formation Stump neuroma Adherent scar

Basma Hassan/2021

Dr. A.H

Tetanus	Gas Gangrene
Definition: - Specific anaerobic infection - Mediated by neurotoxin - Lead to → Nervous irritability → Tetanic muscular. Contractions	**Definitions** - acute spreading gangrene. - Associated é gas formation & profound toxemia by anerobic spore bearing Bacilli
Aetiology **Organism :** Clostridium tetani gram +ve Anaerobic Bacillié terminal Spore (drumstick appearance) **Source of Organism** - Organism naturally present in intestine of Horses - Spores present in manured soil & dirt - Spores resist heating, dryness, Boiling for 5 minutes **Mode of Infection** 1) Wound: contamined by soil 2)Umbilical stump: infected catgut, contaminated dressing and powder. **Toxins** Neurotoxin **Predisposing Factors** 1)Wounds contaminated by hoarse excreta 2)Presence of FB or associated pyog. infection 3) Wound é low oxygen tension e.g deeply seated & lacerated wound 4)Wound low Blood supply e.g anemia, shock, Tight bandage Plaster of Paris	**Aetiology** **Organism:** fall into two groups 1- Saccharolylic Cl welchii — cl. Septicum 2- Proteclylic cl. histolyticum — cl. sporagers. **Source of Organism** Organism: normal inhabitant intestine of man & animal Spores: manured land e.g Field battle- farms **Mode of Infection** 1- Wound: contamination of extensive wound in: - War injures - terrorist- attack on civilized person **Toxins** α Toxin : Others include: hyalouronedase, lupase hemolysin **Predisposing Factor** 1- lacerated wound involve Bulky ms e.g: gluteus 2- presence of FB or dead tissue 3- ischemia of muscle due to tight bandage, cast, suture undertension injury main vessel 4- infection é aerobic bacteria → make field suitable for clostridia(anaerobic) 5- Elderly person é above knee amputation & fecal incontinence.
Pathology - neurotoxin is an exotoxin produced locally & reach CNS via blood or motor nerves or both. Once reach CNS fixed by motor cells & then can't be detected in blood or CNS.	**Pathology:** either local or systemic **Local:** 1- saccharolylic org cause:- Necrosis of ms due to thrombosis of blood vessels and haemolysis of blood. Ferment glycogen of dead ms: liberation of H_2 , Co_2 Liberated Bl pigment stain ms Brick red colour.

- antitoxin can neutralize neurwotoxin just before it's localized in CNS.
- lead to ↑ excitabily of medulla & spinal cord from which mild stimulus cause violent spasm
- Death from toxemia ,exhaustion, resp. obst.

2- Proteolytic org. cause:
Ferment ptn. of dead ms → liberation of H_2S $\xrightarrow{+fe}$ Fe_2S → Greenish black discoloration

Systemic
- Blood hemolysis lead to → pallor, → Tinge of jaundice
- Degenerative changes in liver, kidney, suprarenal

Clinical Picture

IP : non immunized pt 24h- 15 day
Imm -- 11 day may weeks or months

divided into stages:

Toxemia : ↑ temp. ↑ pulse
Pt. Being irritable, headache, rigor
Pt- gets Hepatitis, myocarditis, gn

Tonic :
Pain, numbness, lock jaw, neck stiffness, bitter smile

Clonic :
- violent ms. Contraction reflex to minor stimulus e.g light
- stage characterized by
  - Incomplete relaxelion
  - Arched Back
  - Sweating profuse
  - Marcked Tachycardia Garve Prognosis
  - Spasm at intercostals ms diaphragm → prolonged apnea

Clinical Picture

IP : varies from few hours to few days.

Divided : general, local

1) **General** ↑ temp. ↑ pulse
pt is apprehensive
shock, oliguria

2) **Local:-**
gas:pain, numbness, wound is swollen, crepitus
Gangrene:
- serosanguineous discharge.
- muscle: Brick red
  - Don't contract on pinching
  - If cut not bleed
  - Greenish black
- overlying skin: greenish black
- offensive odour

Investigation

Polymorphnuclear leucocytosis is present

Investigation

Mlainly, diagnosis based on clinical appearance at wound.

DD. tt msr

1) trismus: due to local cause e.g T.M.J arthritis
2) Tetany carpo-pedalspasm
3) Meningitis: neck muscle 1st.
4) Strychnine poisoning: complete relaxation
5) Rabies → history of a dog bite
spasm on seeing or drinking water
Mainly MS. Of Deglutition & resp .

Complication

Due to toxemia
- myocarditis
- GN
- Hepatitis
- Avulsion fracture in bone

Clinical Subtypes

See notes AH

DD: A } other cl. Infection

1) simple contamination not significant infection
2) gas abscess:
- noninvasive, no ms. involvement
- ttt : incision, drainage
3) cl. cellulitis
- SC, no ms involvement
- edema, gas, skin discoloration
4) Localized cl.myositis:
- non invasive
- myositis

5) oedematous gangrene :
- Highly fatal
- Cl.oedematiens
- No gas

B } Non cl infection
Mixture of gram –ve bacilli & gram +ve cocci

C } c- Surgical emphysema: presence of gas under skin

Prevention

Every child should be actively immunized by tetanus toxoid and continuing booster injection every 7- 10 years

Individual on wound exposure

- Proper immunized
  - ↓ give booster dose 0.5ml IM
- Improper immunized
  - Clean ↓ • TT one exposure
  - at risk ↓ • TT • TIG • Ab
- Not previous immunized
  - clean ↓ • TT 3doses 4-6 weeks interval
  - at risk ↓ • TT • TIG 250U IM • Ab

Prevention

All clostridia infection are preventable.

- adequate debridement of wound, clean, left open
- antibiotics: penicillin
- adequate circ. support avoid tissue hypoxia
- Anti GG serum isn't used.

Treatment:

Intensive ttt should be started soon

1- neutralize by antitoxin TIG 3.000- 6.000 unit IM give in proximal portion of wound or in vincity of wound, repeated doses may be required .

2- Excise & debride:

after neutralize of Toxin, wound left open & H2O2 may needed

3- the pt .

- Aqueous penicillin 20- 40 million unit/ day
- Barbiturates should be cautiously used to avoid CRS failure (depression)
- Curarization é mechanical ventillation.
- Don't disturb pt by unnecessary movement & excitement .
- Dark quite room

N.B: One attack of tetanus doesn't give life long immunity

Treatment

1) **Wound Management (Under GA)**
   - Dead Tissues & muscle are excised
   - Decompression of Tight fascial comportment
   - deep fascia, skin left open
   - daily exam & debridement is necessary
   - diverting colostomy in extensive perineal infections
   - diffuse myositis & complete loss of blood supply or when a decquate depridement leave useless ——→ amputation

2) **Hyper baric oxygen**

   ↓ bacteria invasion & toxin production given for 1-2 hrs, repeated every 6-12 hrs.

3) **Fresh blood transfusion (early given)**

4) **Antibiotics**: penicillin 20-40 million unit/day clindamycin metronedazole can be used

Prognosis

Mortality rate 20%

Many thanks to Dr/ Aly Hassib

• Mohamed Farouk "Rico"

• Abd El Rahman Youness

Before

After

نصيحه:

متتهزش

SYSTEM